COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER AND R. DAWSON HALL, *Editors.*

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A Summer Questionnaire

IT IS not often that a request for information or a questionnaire reaches the official of a coal company from his association with more real reason behind it for the good of his particular business than that on reconsigning recently mailed out by the the American Wholesale Coal Association to the jobbers. Reconsigning is to the middleman what car supply is to the producer, and the problems of each in maintaining a maximum of freedom in the use of cars, each peculiar to his way of doing business, are indicative of the function of the associations representing the respective branches of the trade. Everything and more that the abolition of the assigned car means to the producer is at stake with the jobber in the extension of the reconsigning practice.

In sending out his questionnaire to the membership of the wholesale association Mr. Cushing aptly points out that to many jobbers, traffic means, mainly, reconsigning, and he asks for information from those who alone can give it, regarding the extent and ramifications of the practice. Just as the producers have for years been opposing the assigned-car practice with general arguments but without specific facts, so has the argument over reconsigning been conducted. No one is able to be precise in his statements of value and importance to the trade of this implement of business because no one has heretofore collected the facts about it. Mr. Cushing has listed under a few heads the data essential to a better understanding of the subject and quite properly tells his membership that if he is to pursue the matter to advantage before the railroads and the others interested in general traffic problems, he must be armed with more than hackneyed generalizations.

It is being requested that the wholesalers report such simple facts as the total number of cars handled by months the first of this year, the number reconsigned, the number taken from other wholesalers, and of those reconsigned, the number rebilled before arrival, after arrival, both before and after expiration of free time, and other similar details, all of which questions will at once appeal to the jobber as pertinent to the proper analysis of the problem. Mr. Cushing recognizes that his problem is not so much that of deciding what information he needs as it is getting the data from those who can alone furnish it. He notes that last year he made a request on the six hundred members of his association for certain essential data and that only seventy-six members responded. Such a feeble response can but be discouraging to an association officer, and it is no wonder that Mr. Cushing says that he is asking for these new data reluctantly, despite that fact that they can easily be taken from the records of any shipper.

Commenting on the use of words, Brander Matthews once noted that *pie* is the *raison d'être* of New England indigestion, whereas *pi* is the *sine qua non* of dialect stories. To the middleman in the coal trade, reconsigning is both, and any of the six hundred members of the American Wholesale Coal Association who do not promptly and fully answer the questions that Mr. Cushing has put to them are either reluctant that the facts become known or are indifferent to the future of their business.

We are insistent and consistent advocates of fact-finding in coal. It is a pleasure to support the plea of the wholesale association for data from its members, because this branch of the trade needs a broader understanding and more sympathy with the modern principle of doing business and going before the public with fundamental facts as well as more experience in collaborating in such work. Self-interest in this instance would prompt self-education of the jobber. Mr. Cushing need not be disappointed, however, if the returns fail of 100 per cent, because, by making light of all efforts and arguments of the government to gather information from the trade, he has given his membership cause to look with too little interest on his statistical requests.

Keeping Track of Prices

IN our search for landmarks by which to chart the way over the troubled seas of uncertainty index numbers have almost become a fetish. Prices, wages, production, every measure of industrial and human progress is tabulated, diagramed and studied. There is no more scientific and sensible way of making comparisons than the index number, but when one of our most cherished and respected federal financial institutions sends a representative to our office for a record of our prices of coal for one hundred years we are in turn flattered, amused and moved to expostulation.

It appears that this institution is about to construct an index number of prices from 1820 to date and that coal as one of the basic commodities is to be included. Furthermore it is proposed to use prices of Pittsburgh coal as representative of this industry, notwithstanding that the first record of production of bituminous coal in Pennsylvania, as recorded by the United States Geological Survey, was in the year 1840 and that the first year for which there is a separate record of the production of anthracite was 1821. For the first fifty years of the 100-year period—that is, until about 1870—more anthracite was produced than bituminous and hard coal was the coal of industry as well as the fuel for households. A proper selection for such an index for the earlier period, therefore, would depend on anthracite, but in later years the production and price of soft coal must be chosen to correctly portray conditions in this country.

A refinement sought in this study is monthly quotations on the price of coal throughout the 100 years. Unfortunately price records by years, not to think of months, are not available except for isolated portions of this period, and some of those that are of record are

not worth consideration. The Bureau of Labor statistics of the Department of Labor, for instance, still carries as a basic commodity in its selected list of monthly quotations of wholesale prices, the price of Pittsburgh coal f.o.b. cars at Cincinnati! It appears that at one time, many years ago, Pittsburgh (Youghiogheny) coal was regularly quoted by the Chamber of Commerce of that city in cents per bushel, floated down the river in barges. We are unable to ascertain how the quotation is obtained currently or why it should now be given consideration by students of economics and prices.

After making inquiry as to whether the government considered including in its 100-year study of monthly prices that of gasoline and possibly automobiles, we closed the interview by referring the ambitious collector of facts to some octogenarian in the trade. We fear that getting prices of coal one hundred years back is as hopeless a task as knowing them one hundred days ahead.

Scientific Farming an Adjunct to Mining

THE address of J. J. Rutledge at the Illinois Mining Institute strongly but apparently unintentionally suggested to the hearer the advantage of combining farming with mining in districts where both could be pursued. If operators purchased their land in fee they could take out all the coal and yet would sustain only the loss that the damage done to the surface actually caused, whereas where ownership of coal and surface is divided, payment has to be made which greatly exceeds any actual damage.

Unfortunately coal operators have rarely been prudent farmers. They seldom organize their farm work as skillfully as their mine work, and where farming pays it is not profitable to hold farm lands and leave them unworked or under yearly lease, as the value of the land as a farm is likely to be even greater than its value for mining. It would be better to recognize them as complementary and try to get the best results out of both.

A careful study might profitably be made into the best use to which the surface could be put, the farm superintendent being regarded as an official equally important with the man in charge of the mine and the selection of the agricultural machinery and methods as much an object of care as the choice of mining machinery and of operating plans.

Large farms should be at an advantage in marketing and immense areas of country which are now given up to certain limited forms of farming could by an enterprising farmer-operator be converted to farm better suited to the soil and market.

Methods of mining that would give a larger percentage of recovery, less cost for yardage, less expense for production, less haulage expense and larger coal could be planned if the surface belonged to the coal owner rather than to an avaricious farmer who was looking eagerly for an opportunity to collect "damages" altogether out of proportion to the injury which mining and subsidence might do to him.

Mr. Rutledge, speaking about complete recovery of coal, views it solely as a matter of royalty and coal conservation. More important by far is the ability to get coal of large size, to concentrate the work, to use loading machines, to conserve the outlay on shaft sinking, heading driving and plant construction by increasing the tonnage obtainable from these operations and to plan the work so that the locomotive can deliver its cars in unbroken trips, as could be done in thick coal with panel longwall.

A saving in accidents would be affected by drilling in a more standard way. This could be assured by using panel-longwall faces, when the holes could profitably be drilled by one man who could be relied on not to extend them to an excessive length or into the "solid." Longwall, moreover, does not require heavy shooting and presents conditions not favorable to the propagation of dust explosions. With longwall, it is fair to say, shot-firing might be made safe to life and property.

Hydraulic shooting of the coal might even be introduced advantageously, as the longwall face favors its introduction. Pneumatic backfilling, of course, is a possibility. It would eliminate subsidence almost entirely. Accidents would be reduced by having the locomotive always at the head of the trip and so removing the need for uncoupling and recoupling underground. It also would be possible to do away with a number of switches and frogs which often cause derailments.

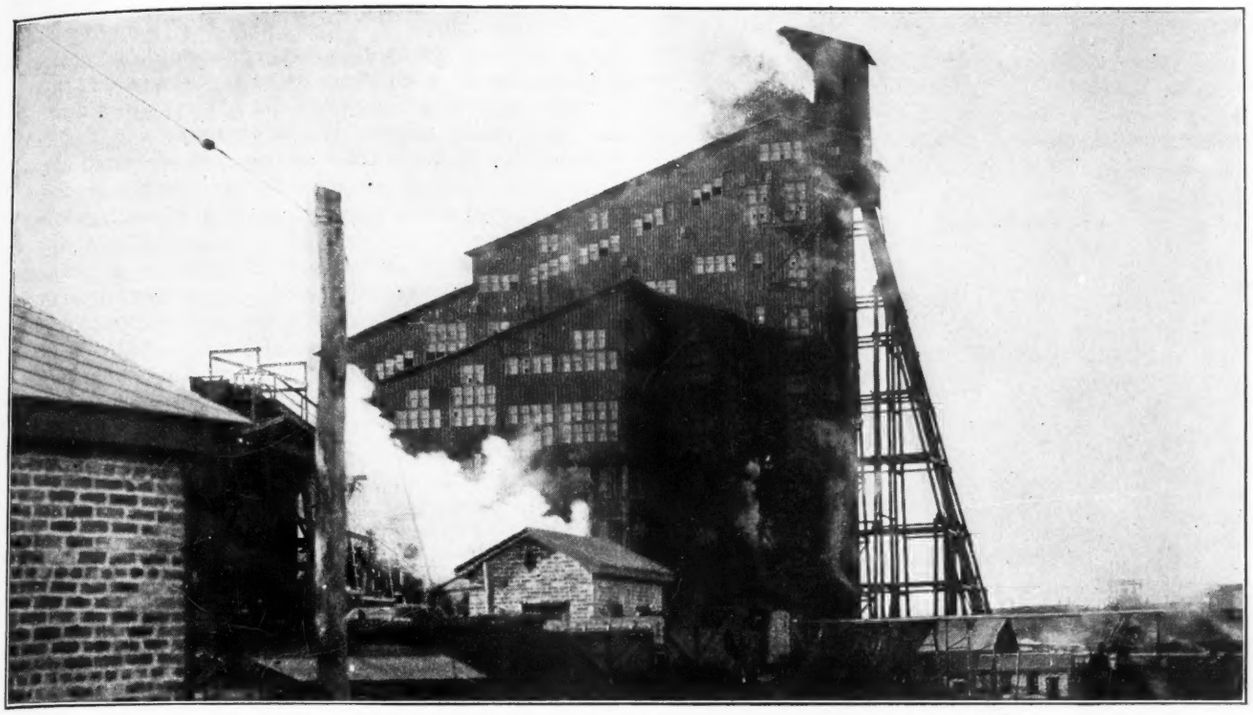
In no section of the country is panel longwall more clearly indicated than in Illinois, and undoubtedly it would pay even if the farms were purchased merely to run wild. Still more profitable would it be if the surface were diligently cultivated and an intensive effort made to find the best kind of product and the most desirable market for it. The flooding of the surface by subsidence would not be inevitable as it is so often today if the proper means were taken to prevent it, these means, however, being beyond the purse and engineering ability of the average farmer.

Anomalous Activity

FEW indeed are the industries which work as steadily as the anthracite mines. Jett Lauck assured the world that the steadiness in the near past was no warrant for the future. The present year has shown him to be wrong. More anthracite coal has been mined during the present coal year than in the same months of the previous year, and this despite the fact that the former twelve months commenced in a boom period and the present started when business had flagged grievously.

This steady work has given the mine workers money to spend. *The New York Times* in its section headed "The Business World" informs us that "Word went forth a short time ago that while the rest of the country was suffering from a business slump, the coal district around Wilkes-Barre and Scranton was fertile sales territory. The result of this report, so salesmen say, who have returned from that section, is that the Pennsylvania towns mentioned have been flooded with representatives of every kind."

Unfortunately for the laboring people, numbers have gone to the anthracite region hoping for work in other lines than mining, and in that respect the coal region is little if any better than other districts. It is only the mines and the stores which have work, and only the collieries and the trades people who can buy. The anthracite region is a comparative oasis in the business desert, but even there only the coal and mercantile businesses are thriving. The anthracite mine workers cannot allege irregular work, but such is human nature and such the twist of the mine workers' minds that it is likely they will feel that it is only right that they shall be duly compensated for the irregular work of their bituminous fellow craftsmen, with whom they are combined to seek a new scale next April.



SUSQUEHANNA COLLIERIES CO.'S SCOTT COLLIERY BREAKER AT KULPMONT, NEAR SHAMOKIN, PA.

By Using Vertical Box Chutes and Retarding Conveyors Scott Breaker Greatly Reduces Degradation

Open Chutes, When Used, Are Short—Box Chutes Are Kept Full—Feed Regulating Discharge—Retarding Conveyors Used for Short Runs—Only Two Sizes Made at Each Shaker—Fine Material Cushions Coarse

By Dever C. Ashmead
Kingston, Pa.

ONE of the most difficult problems encountered in the preparation of anthracite coal is the transference of the material from one portion of the breaker to another, as well as the final lowering of the finished product to the pockets. Appreciable loss in the amount of the prepared sizes results from improper design of the equipment used for these purposes.

The problem is well illustrated by work that has recently been done at the Scott Colliery breaker of the Susquehanna Collieries Co. Outstanding among the changes has been the tearing out of a chute 350 ft. long which formerly carried clean broken coal from the top of the building to the loading pocket. The degradation of coal incurred in traversing so long a chute was considerable.

Many schemes have been adopted to reduce the great degradation losses which invariably result when coal is moved from point to point in the breaker. None of the means yet tried seems to be entirely free of objectionable features; some reduce but little the amount of breakage, some are too long, consume power unnecessarily or are too expensive in upkeep.

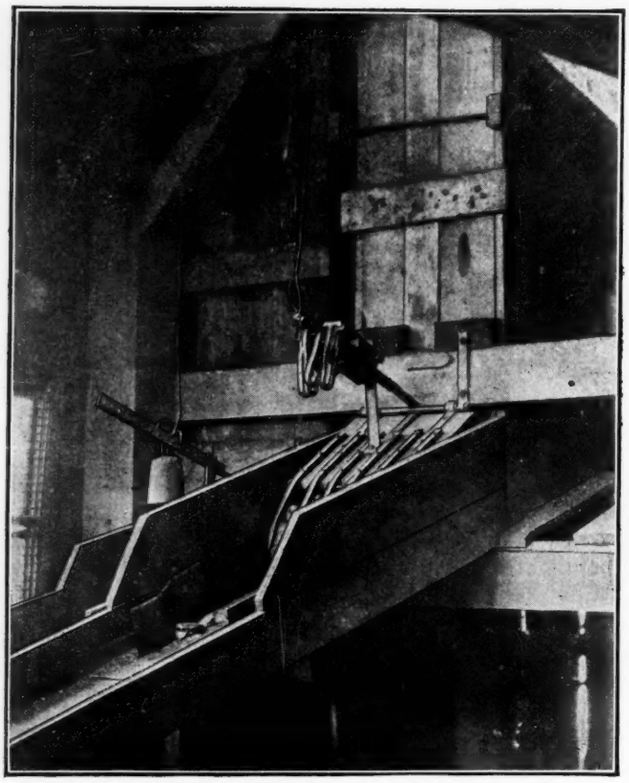
In the reconstruction of the Scott breaker some means had to be devised for lowering the coal from the top of the structure to the pockets at the bottom with minimum abrasion. In dispensing with chutes not only was degradation of the coal largely reduced but the saving of space was considerable. Most of the interior in the original building was occupied by chutes and it was expedient to remedy this condition. Besides this the first cost of the chutes and their upkeep was unduly expensive.

The Larger the Coal the More It Suffers

It must be remembered that the larger the coal the greater the degradation in the chute. When the coal is first crushed it is reduced to steamboat size. As this crushing is done near the top of the breaker this coal has to be taken down the longest chute and has, therefore, all the degradation due to its long travel added to that arising from its large size. Being unmixed with smaller sizes, there is no fine coal to cushion it in its travel. Consequently it suffers severely when it is caused to travel by any method that is based on the free movement of coal under gravity.

It is realized that gravitation, while a cheap force to employ, is almost always the most expensive in the end. The movement of coal by gravity is inexpensive, but that cheapness is entirely fallacious economy when the debits for degradation are considered as they rightly should be.

The Scott breaker was built several years ago. As time passed methods of preparation were altered and



LOWER END OF TWO BOX CHUTES SHOWING FINGERED DOOR

By adjusting the weight on the arm by which the door is lifted the latter will be closed tight or opened to suit the load on the pans or flaps. These box chutes are more than 36 ft. long.

improved so that it recently became necessary to make radical changes in the preparation equipment. How extensive these changes have been can be understood when the flow sheet of the past is compared with that of the present. Only four years intervened between the dates at which the two flow sheets appearing in this article were respectively representative of the methods employed.

Box Chute Like the Full-Battery System

The first changes made were the installation of retarding dragline conveyors. As will be seen later, the breaker has three of these still in use. Later the box type of chute now employed for lowering coal through excessive vertical distances was developed. One of the accompanying illustrations shows two of these chutes handling broken coal; one is for the product of the Christ jigs and the other handles the material from the clean-coal side of the building.

The basic idea employed in these chutes is the preservation of a continuous column of coal from the point of discharge at the bottom to the point of entrance at the top. The vertical box is fed from an ordinary chute provided with a pan control. When the vertical portion is filled the material backs up in the inclined chute until it pushes the pan downward. This raises the door at the bottom of the chute and allows coal to escape until sufficient weight is removed from the pan, when it rises, the discharge door closes and coal ceases to move in the box. The action of this device may be seen in the accompanying diagram. Of course, the vertical chute is lined with sheet iron to reduce wear.

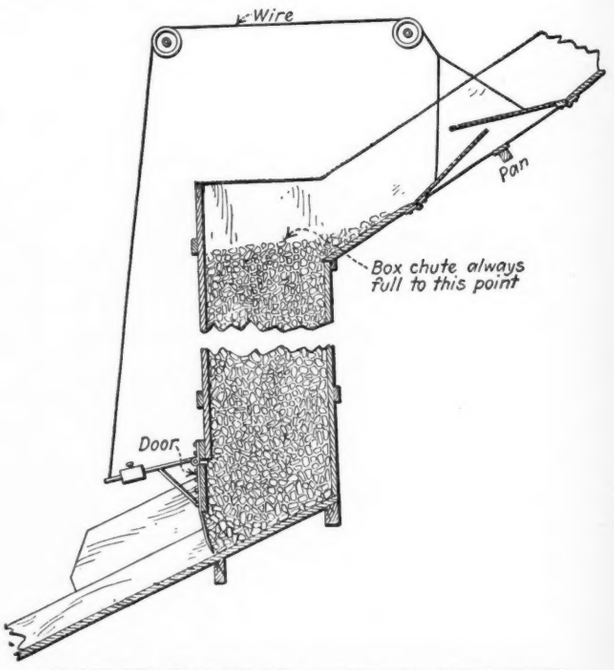
This type of chute does not entirely eliminate breakage, but reduces it appreciably. It is believed that if the square corners of the vertical box were rounded degradation would be still further lessened, as most of the breakage apparently occurs in the corners. If these were not present lumps would not stick in them to produce a grinding effect. It also is possible that if the angle at the bottom of the box were made more acute there would be less tendency for grinding due to the weight of coal above pressing on that which is leaving the box.

Another marked deviation from ordinary practice in this breaker is the adoption of the jig setting, these machines being arranged in steps, as has been described in a previous issue of *Coal Age*. (April 7, 1921, p. 618.) This jig setting materially reduces the number and length of the chutes employed in this breaker.

To understand the necessity for the adoption of better methods of lowering coal a description will be given of the passage of this material through the breaker. At each point where special arrangements are employed in the lowering process, the reasons for their adoption will be set forth. The numbers employed throughout the text will refer to corresponding numbers on the flow sheet.

Broken Passes to Pocket by Box Chute

From the surface the coal is hoisted to the top of the breaker in the mine cars on a self-dumping cage (1). From this it is discharged onto the bull shaker (2). This separates the coal into three sizes, lump (3), steamboat (4) and fine (5). The lump passes onto a picking table (6), where the large pieces of rock (9) are separated from the coal (8). The product thus cleaned then goes to the No. 1 rolls (11). Rock (9) from picking table (6) also is hand-picked and whatever coal is saved is sent through the No. 1 rolls (11). From this crusher the coal passes to a shaker (19), where steamboat (20), broken (21) and fine coal (22) are made. The steamboat goes to another picking table (26) and is cleaned of rock (35).



CROSS-SECTION OF AN AUTOMATIC BOX CHUTE

The coal piles up in the box, and when the door is opened moves slowly toward the opening. The door is normally closed but is opened whenever coal begins to back up in the open chute at the top, thus loading the pans or flaps and causing a pull on a wire by which the door is opened.

The broken is sent through one of the box chutes (100) already mentioned and through a telegraph chute leading to the broken coal pocket (104). The box chute (100) is installed at this point in order to avoid the use of about 300 ft. of ordinary chuting. It immensely decreases degradation.

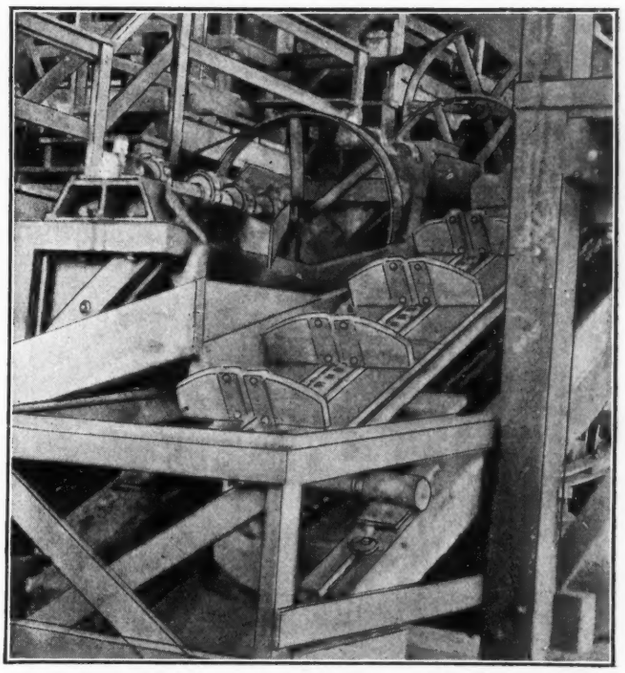
Steamboat coal (4) from the bull shaker (2) joins with that from the main shaker (19) and passes to a picking table (26). The cleaned coal (34) from this table then goes to a No. 2 roll (41). At this point the coal goes to another shaker (53), on which four sizes, steamboat (61), broken (62), egg (63) and finer (64), are made. The steamboat coal then goes through a No. 3 roll (73) and thence passes to a shaker (80), on which egg (81), stove (82), chestnut (83) and finer (84) are prepared. The broken coal (62) from shaker (53) goes to the box chute (100) on its way to the pocket (104). Egg coal (63) from the same shaker (53) likewise passes directly to its pocket (105).

Bypass Egg or Broken if Market Demands

When orders for egg or broken are scarce these sizes can be bypassed and sent through the No. 3 roll (73). The egg (81), stove (82) and chestnut (83) sizes from shaker (80) all go to their respective pockets without further treatment. Finer coal that has passed through this shaker goes to another (85) on which pea (92), No. 1 buckwheat (93), rice (94), barley (95) and culm (96) are made, after which each size passes to its proper pocket. The culm goes to the culm bank.

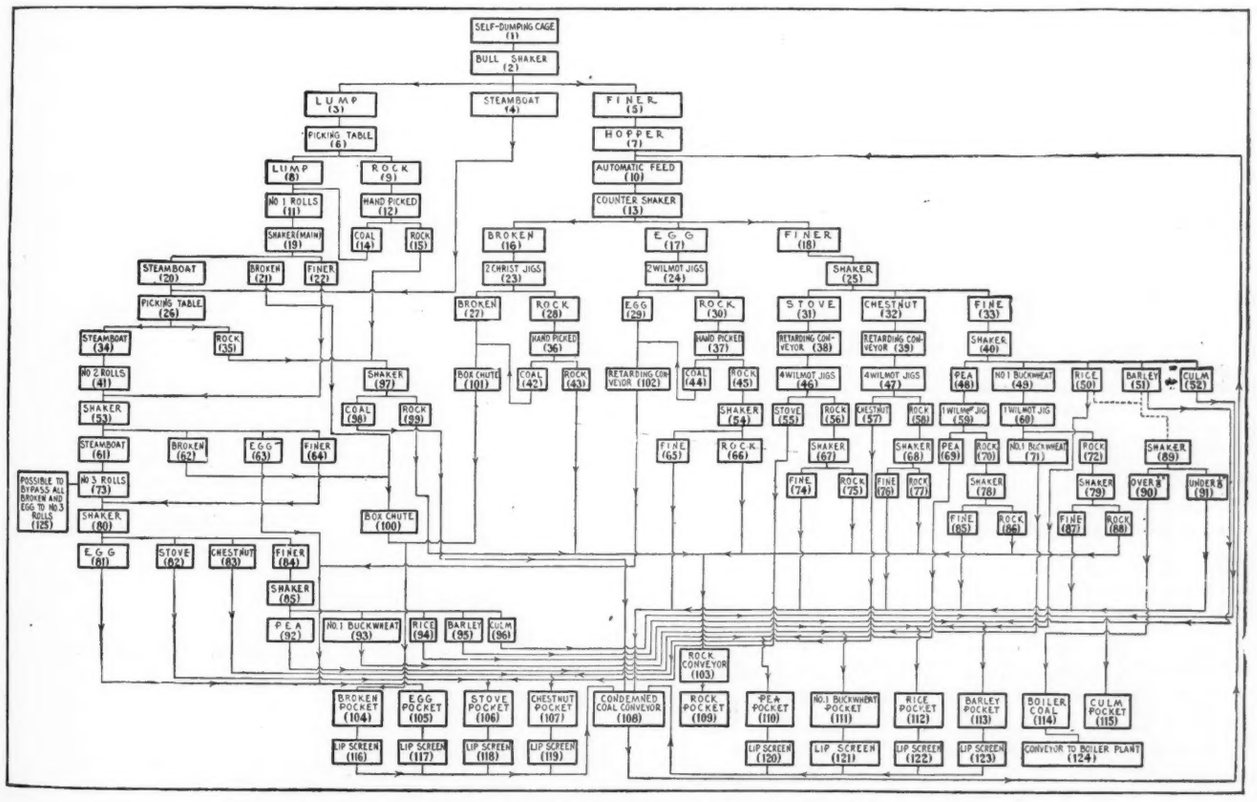
The finer coal (22) from shaker (19) joins with that coming from the No. 2 rolls (41) and passes through the shaker (53). The finer coal (64) made on this shaker (53) passes directly to shaker (80) and is treated with the material from the No. 3 rolls (73).

The rock (15) and (35) which is separated from the



RETARDING CONVEYOR LOWERS CHESTNUT FROM SHAKERS

The illustration also shows the tops of the chestnut jigs. This retarding conveyor brings the coal from a considerable height in the breaker and saves much degradation, is positive in action and saves room.



FLOW SHEET OF NEW ARRANGEMENT OF BREAKER AT SCOTT COLLIERY

It will be noted that only lump and steamboat are taken off on the first shaker, and after passing the first rolls, only the steamboat and broken. After the second rolls, broken and egg are taken off. True, a little steamboat still remains, and it is taken off as a third size but there is little of it. After the third rolls egg, stove and chestnut are taken off. From the counter shaker only broken and egg are taken and from a second counter shaker only stove and chestnut. Thus in general only two sizes are taken off at a time and the sizes finer than those taken are left together so that the finest sizes cushion those which are coarser. When the prepared sizes have been taken out the steam sizes are separated without any regard for this principle.

SPACE RELEASED BY RELINQUISHING OPEN CHUTES

This large space was formerly taken up by innumerable chutes. Box chutes and retarding conveyors now do the work. The cross timbers at different heights show how the sloping floors of the chutes were secured, but the floors themselves have been removed.

coal on this side of the breaker is passed to a shaker (97). Here adhering coal is loosened and passes through the screen to the condemned-coal conveyor. The rock is deposited by the rock conveyor in the pocket for that material.

Thus far this description has been confined to the treatment administered to the coal on the "clean" side of the breaker. It now becomes necessary, therefore, to revert to the finer coal (5), which passes through the lowest deck of the bull shaker (2). This coal is discharged into hopper (7), from which it is fed by an automatic feeder to the counter shaker (13). Here the broken (16) and egg (17) sizes are separated from the finer material.

The broken coal (16) is treated in two Christ jigs (23), and the cleaned product (27) passes to a box chute (101) on its way to the broken-coal pocket (104). Rock (28) from these jigs is hand-picked, and the coal (42) that is salvaged from it is thrown into the clean coal (27) from the jigs. Were it not for the box chute employed to move the coal at this point it would be necessary to use the old sloping chute, which in this case probably would attain a length of 300 ft. The box chute is about 35 ft. long vertically.

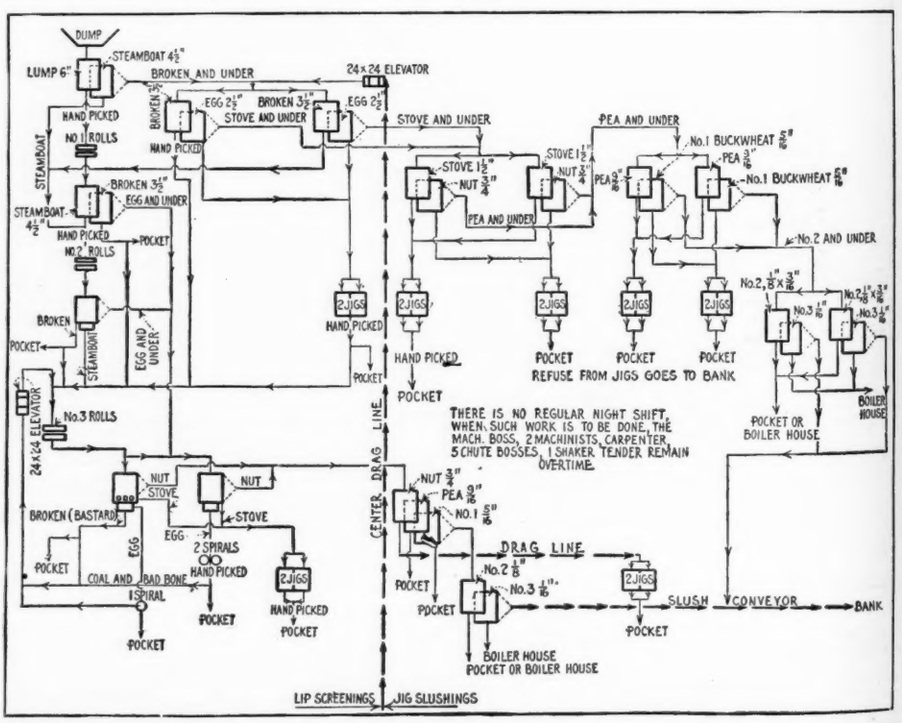
From the counter shaker (13) the egg coal (17) receives exactly the same treatment as that administered to the broken (16) except that washing is done on two Wilmot jigs (24) instead of on jigs of the Christ type. In place of using a box chute to convey the coal from these jigs to the pocket a retarding conveyor (102) is employed, saving a number of long chutes. Rock (30) from these jigs is hand-picked (37) and then passed to a shaker (54) to remove the fine coal (65) that may come over with the slate.

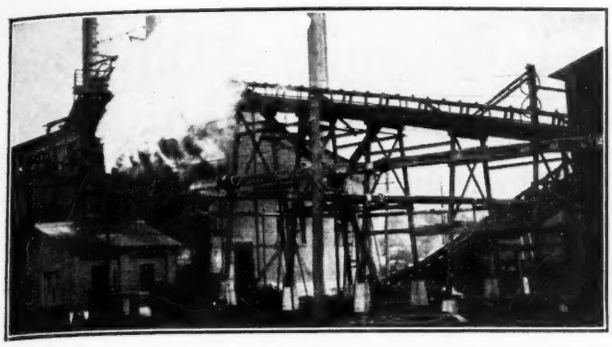
The finer coal (18) from shaker (13) passes to another shaker (25), where three separations, stove (31), chestnut (32), and finer (33), are made. As the jigs (46) for the stove coal are located on the main floor of the breaker just above the pockets, and the stove-coal shaker (25) is high up in the building, it is necessary to use a retarding conveyor between the shaker and the jigs that treat the coal. By so doing degradation is greatly reduced.

Four Wilmot jigs (46) prepare the stove coal made

Flow Sheet Discarded

This breaker required a machinist boss, a carpenter, a rope tender, two machinists, seven platform men, one platform boss, five chute bosses, one man to clean hopper, thirty-seven slate pickers, one jig boss, six jig runners, two laborers, one engineer, two shaker men, one man on the rock line, one on the rolls, one on the chutes, one on boiler coal and a breaker boss—a total of 73 men. The machinery consisted of one Mullen pump, 20x10x36 in.; one two-cylinder breaker engine, 18x30 in.; one single-cylinder conveyor-line engine, 14x24 in., and one two-cylinder breaker hoisting engine, 16x30 in. There were in all twenty-five shakers, fourteen jigs, three spirals, two 24x24-in. elevators, three rolls and three screens.



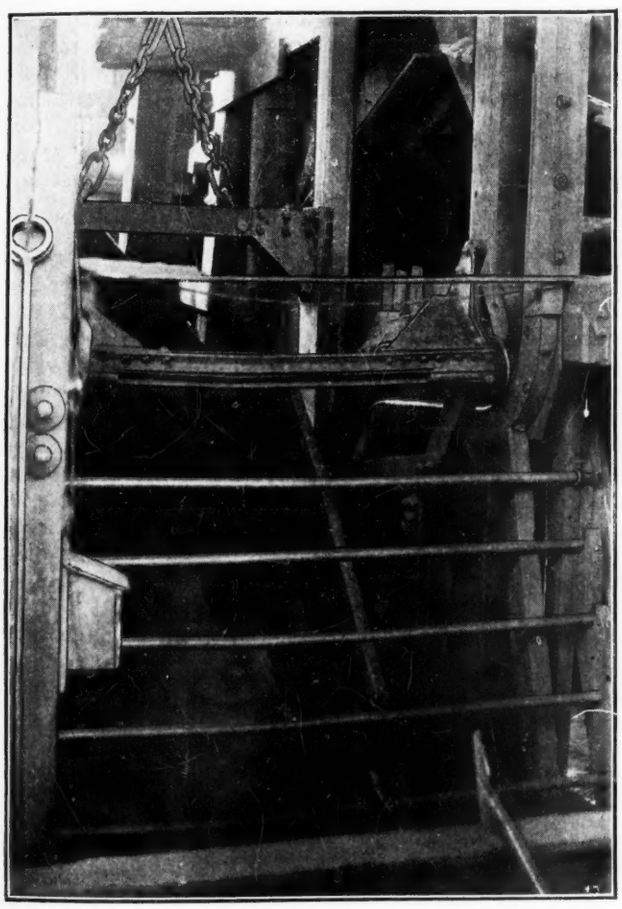


CONVEYOR FROM BREAKER TO POWER PLANT
This shows not only the conveyor for boiler-fuel but also the ash conveyor by which the ashes from the ash pit are conveyed to the rock pocket of the breaker.

on shaker (25). These machines are arranged in "step" formation. Under ordinary circumstances rock from the jigs is run over a shaker (67) to separate the fine coal from the slate. The treatment accorded chestnut coal (32) from shaker (25) is exactly similar to that accorded the stove size.

From shaker (25) the finer material goes to another shaker (40). At this point all of the fine sizes of the counter or dirty coal are separated, making pea (48), No. 1 buckwheat (49), rice (50), barley (51) and culm (52). The pea coal goes through a Wilmot jig (59) and thence to its pocket (110). The No. 1 buckwheat coal is likewise treated in a Wilmot jig (60), the cleaned product going to pocket (111).

Rice (50) and barley (51) receive no further treatment than that necessary to size them, after which they proceed to their respective pockets and are ready for shipment. When it is necessary to use these coals for boiler fuel they are united as they leave shaker (40) and pass to another shaker (89). The deck of this screen is provided with $\frac{1}{2}$-in. openings and all coal passing through goes to the condemned-coal conveyor (108) while that which passes over goes to the boiler-fuel conveyor (124). Culm from shaker (40) goes to the culm bank (115).



CAGE AT TOP OF BREAKER IN DUMPING POSITION
The coal is dumped from the cars into the chute that feeds the bull shakers.

Coal that is recovered by the shakers over which the rock from the jigs is passed is sent to the condemned-coal conveyor (108), which carries it back for retreatment. The same is true of the coal passing through the pocket or lip screens. Rock from the jigs is taken by the rock conveyor (103) to the rock pocket, from which it is hauled to the dump for disposal.

The distinctive details of this breaker are: (1) The manner in which the coal is lowered from considerable heights by means of box chutes and the employment of retarding conveyors. Both these devices have a decided tendency to reduce the amount of degradation and to decrease the amount of space required for installation of the chutes (2). The arrangement of jigs in batteries, so that they receive either a constant feed or no coal at all. These machines thus are enabled to produce a better and more uniform output. This arrangement also tends to reduce the length and number of chutes required to handle a given amount of coal.

As a result of these changes in arrangements for the transference of coal from one part of the breaker to another, a vast network of chutes has been eliminated and vacant places now exist in this building that are devoid of both machinery and chutes. It is evident that the cost of upkeep has been materially reduced, as much less chute lining has now to be replaced. Another detail of importance in the remodelling of this breaker is the practice of separating only two sizes at a time and using the finer material to cushion the larger. This also tends to reduce degradation.

Many anthracite coal companies do not appear to give adequate attention to the losses arising from the breaking and attrition of the coal. It seems that in many cases small changes might be made in the construction of chutes that would pay for themselves many times over in the course of a year.

Build Your Mine-Door Frames of Brick

By R. W. Mayer
California, Pa.

MOST mine doors are hung in wooden frames which are not only subject to decay but increase the fire hazard. Furthermore, wooden frames are seldom air-tight and more or less leakage usually takes place around or through them.

In order to obviate these difficulties the side members of the frame at least may be built of brick. Hitches are cut into the rib, into which brick walls, or, more strictly speaking, pilasters, are built. A beam forming the top of the frame is built into and is supported by the side walls. Hinges also are built into them, the bolts extending completely through the wall and being embedded in the joints. Long strap hinges usually are employed and the door is allowed to overlap the brick wall by three to four inches. Of course, the walls should be given batter sufficient to render the door self-closing.

By Mixing Fine Coal, Water and Oil, Grains of Oily Coal Are Formed, with Elimination of Earthy Impurities*

In Trent Process Powdered Coal Is Mixed with 30 Per Cent of Its Weight of Oil in Presence of Water—Effects 95 Per Cent Combustible Recovery with Low Ash Content

BY G. ST. J. PERROTT† AND S. P. KINNEY‡

IN CONNECTION with its coal-washing work the U. S. Bureau of Mines is making an investigation of processes to separate mineral matter from coal which are based on the selective action of oils. This article gives the results of one phase of the investigation, namely, the application of so-called bulk oil methods of concentration to the cleaning of coal. This part of the genral inquiry has been carried out in co-operation with the Trent Process Corporation, of Washington, D. C.

When a mixture of pulverized coal and water is agitated with oil in an amount equal to 30 per cent of the weight of the coal, a clean separation of a considerable part of the mineral matter is obtained. The carbonaceous material forms with the oil a pasty agglomerate which is heavier than water, whereas the mineral matter which was physically separated from the carbonaceous material by the fine pulverization remains suspended and can be drawn off with the water.[1]

COAL IS WASHED AS ORE IS CONCENTRATED

The history of coal washing has been similar to that of ore concentration. Hand picking has been supplanted by jigs, jigs have given way to tables in the treatment of the finer sizes of coal, and of late much attention has been given to the possibilities of froth flotation and other methods making use of the selective action of oils.

Bacon and Hamor[2] in discussing the problem of the utilization of fuels, describe experiments carried on at the Mellon Institute by Dr. C. B. Carter on froth flotation of coals. He found that the combustible matter contained in washer waste of all grades could be almost completely removed by suitable oil flotation, with a recovery of between 70 and 90 per cent of the combustible matter. The best results were obtained with washer waste crushed to pass a 48-mesh screen. The coal particles showed maximum floating properties when they were sharp, angular and lustrous. Grinding in machines of the disk type was found to destroy these physical properties and to make the yield of recovered coal from refuse ground in this manner small and its ash content high. Estimates showed that a plant to handle daily 500 tons of ordinary bituminous coal-washer waste would cost $135,000. With such an installation it was estimated that at a cost of $1.84 per ton 75 per cent of the coal present could be obtained from refuse containing 65 to 70 per cent of ash, the product being in the form of dry 25-per-cent ash concentrate. It was found difficult to remove pyrite by froth flotation.

Ernest Bury[3] and co-workers describe an investigation of froth flotation of coal carried out at the works of the Skinningrove Iron Co., England. These workers were able to obtain concentrates analyzing 9 to 14 per cent ash from washery wastes containing 40 to 75 per cent ash. The tailings contained 76 to 89 per cent ash. The authors of the article mentioned believe that a considerable amount of pyrite may be removed by the process, although no sulphur analyses are given. The washed product, which forms as a thick heavy stable scum on the water surface of the froth boxes, contains about 50 per cent of moisture. This concentrate is discharged into revolving filters of the Oliver type, is drained under suction and discharged as a filter cake containing 10 to 15 per cent of moisture.

The cost of cleaning coal by froth flotation is estimated as not greater than the cost of jig washing. In regard to the scope of froth flotation in coal cleaning the authors state as follows: "The flotation method does not, of course, compete with washers which treat nut coal for sale on the open market for boiler firing, etc.; it can be employed only where the original coal is fine or where crushing is part of the normal treatment—that is, for coking, gas-making, briquetting, coal-dust firing, colloidal fuel, etc."

COMPARISON OF COAL AND ORE CONCENTRATION

The mineral matter in coal is classified, (1) according to its physical state of subdivision, as "intrinsic" and "extraneous" and (2) according to its chemical composition as shale, clay, "slate," sand calcite and pyrite. Intrinsic impurities are those which are present in a very fine state of dissemination throughout the coal substance and are not separated from the coal substance even by very fine pulverization. This intrinsic mineral matter is in part derived from the original material and in part is material from external sources which was deposited by sedimentation and precipitation during the laying down of the coal. Extraneous impurities occur in the form of partings, veins and nodules or may be impurities mechanically mixed with the coal during the process of mining. Part of this extraneous mineral matter is removed by the standard methods of washing coal, the amount removed depending on the fineness of crushing necessary to physically separate mineral matter from coal substance, and on the size of crushed coal which the washery can efficiently treat.

There are certain obvious differences between concentrating coal and concentrating ore. In ore concentration the valuable material is heavier than the gangue

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[1]This is known as the Trent process and has been developed and applied to coal cleaning by Walter E. Trent, vice-president of the Trent Process Corporation, 1440 U. Street, Washington D, C. Patents on this process have been applied for by that company.

[2]Bacon, Raymond F., and Hamor, William A.: "Problems in the Utilization of Fuels," *Jour, Soc. Chem. Ind.*, Vol. 38, June 30, 1919, pp. 161-168.

[3]Bury, Ernest; Broadbridge, Walter, and Hutchinson, Alfred: "Froth Flotation as Applied to the Washing of Industrial Coal," Trans. Inst. Mining Engineers. Vol. 60, February, 1921, pp. 243-252

and constitutes a small percentage of the total material treated. In coal concentration the valuable material is lighter than the refuse and constitutes a large percentage of the total material treated.

Furthermore, there is a larger difference in specific gravity between values and gangue in ore than in coal. Gangue in ore varies in specific gravity from 2.5 to 3 and values vary from 4 to 8, whereas the mineral matter in coal (with the exception of pyrite) varies in specific gravity from 2 to 2.7 and the clean coal concentrate from 1.2 to 1.7.

Again, coal contains *extraneous* mineral matter easily separated by crushing and *intrinsic* mineral matter none of which can be separated except by very fine pulverization. The crushed raw coal which is to be concentrated may contain particles of coal of varying gravities containing varying amounts of inseparable ash, making a clean separation impossible at the degree of fineness employed with ordinary washing methods.

Elmore Bulk Oil Process of Concentration

One of the early processes of concentrating ores which made use of selective wetting was the Elmore bulk oil process. Elmore mixed the ore with several times its weight of water and an equal weight of oil in a revolving drum. After gentle agitation the mixture was run into a spitzkasten, where the water and gangue settled to the bottom and were removed. The ore was separated from the oil by a centrifugal apparatus. Froth flotation, employing an amount of oil equal to about 1 lb. per ton of ore treated, or less than the recovery losses in the bulk oil processes, has superseded the Elmore process in the treatment of ore.

As the further history of the coal concentrate is to be different from that of the ore concentrate, it does not necessarily follow that methods using relatively large amounts of oil are impracticable for concentrating coal even though such methods have been practically abandoned in ore-concentration practice.

Oil in Coal-and-Oil Amalgam Can Be Used

The ore concentrate is to be passed through a metallurgical operation for the recovery of the pure metal; the coal concentrate is to be used ultimately as a fuel and in many cases is to be subjected to distillation for the production of coke. The mixture of coal and oil may be burned without further treatment or it may be carbonized with the formation of coke and recovery of the oil and byproducts from the coal. If the oil employed contains a considerable percentage of pitch, it may serve to make coherent coke from feebly coking coals.

The work at the U. S. Bureau of Mines has been made rather on the fundamentals of the bulk oil method than on its economic aspects. Experiments on a laboratory scale have been made to determine for a variety of coals the ash and sulphur removal, combustible recovery, and oil losses with different oils, different methods of agitation, and various degrees of fineness of pulverized coal. The experimental procedure followed has aimed to obtain data giving a complete balance sheet of the process.

The recovery of oil from the coal-oil agglomerate by distillation has been investigated by J. D. Davis, fuel chemist, Pittsburgh Station, Bureau of Mines. His results will be set forth in a subsequent article. This article will include a description of methods employed in determining the efficency of the process in cleaning coal on a laboratory scale and will summarize the results obtained with typical coals of the country. A brief discussion on the subject of fineness of grinding and its effect on separation of mineral matter from coal will be included.

Oil and Coal Agglomerate To Avoid Water

The bulk oil method of cleaning coal depends upon the same principles of selective wetting that have made possible froth flotation of ores and have been voluminously discussed in the literature of flotation. When oil is stirred into a suspension of coal in water, the first tendency probably is the formation of a suspension of droplets of oil in the mixture. The coal particles, however, are so readily wet by oil in preference to water that the globules rapidly become small agglomerates of coal and oil. These agglomerates tend to adhere to one another, entrapping water in the spaces between them and forming the pasty mass which precedes the "breaking" of the mixture.

As a result of further agitation, the small agglomerates coalesce into larger granules and finally coalescence reaches a point where a large amount of water is released from between the particles, and the separate granules are visible. With further agitation the granules agglomerate into larger masses and, if sufficient oil has been added, finally form a more or less homogeneous mass.

Three Conditions Favoring Large Recovery

The best conditions for rapid formation of this "amalgam"[1] are (1) low surface tension between coal and oil, (2) a high surface tension between coal and water, and (3) a high surface tension between oil and water. In other words, the reaction will take place most readily (1) with a coal which is very readily wet by oil, (2) with a coal which is not readily wet by water, and (3) with an oil which does not readily form emulsions with water. From (1) and (2) we should expect that the bituminous coals and graphite should respond most readily to treatment and that the lignites would be more resistant.

From (3) we should expect gasoline and the higher paraffin oils to form an "amalgam" more readily than benzol and the higher aromatics and that the presence of substances in water or oil which tend to lower the surface tension between water and oil would make the formation of the amalgam more difficult.

Particles of refuse which have been physically separated from the clean coal particles by the preliminary pulverization, will be easily removed if they are readily wet by water in preference to oil and removed with difficulty if they have any tendency to be wet by oil. Hence we should expect that shale, clay and gypsum would be readily removed suspended in the water but that pyrite might tend to remain in the amalgam.

Coal is pulverized to pass a 65-mesh screen in a laboratory disk crusher. For finer meshes the coal is then ground in a porcelain ball mill with an equal weight of water for periods varying from four hours to as long as sixty hours when extremely fine grinding is desired—coal as fine as 800-mesh has been obtained in this manner. The coal is washed from the ball mill

[1] The term amalgam is used to designate the mixture of clean coal and oil. In ordinary technical usage, amalgam refers to an alloy of metal with mercury, but the term is correctly used, according to Webster's dictionary, to refer to any "mixture compound, or union of different things."

into a settling jar, from which, after settling has taken place and some of the water has been decanted, it is transferred to a small electrically-stirred glass churn. Three-hundred-gram samples of coal have been employed in most of our work and have been agitated in the churn with about 900 cc. of water. A sufficient quantity of oil is added—about 25 per cent of the weight of the coal for a coal containing 25 per cent removable refuse—and the mixture is agitated until the agglomerate of small egg-shaped granules known as the amalgam is formed.

Amalgam So Solid That It Can Be Washed

The amalgam and water and suspended refuse are poured onto a 100-mesh screen and washed with water. The amalgam is then placed in the churn and washed with fresh water and the process repeated until no further mineral matter is removed.

After the amalgam has been separated from the refuse and the refuse filtered on a weighed paper, the products for analysis are: (1) Amalgam consisting of purified coal, oil, and 10-30 per cent water. (2) Refuse, consisting of mineral matter, a small amount of combustible matter, oil and water. (3) Refuse water, consisting of all the water used in the process with the exception of that retained in the amalgam and filtered refuse, a small amount of dissolved mineral matter, and under certain conditions possibly emulsified oil.

Before analysis can be made both amalgam and refuse must be freed of oil and water. This separation must be done in a quantitative way, so that oil losses, if any, may be determined. The obvious way of separating the oil is extraction of amalgam or refuse with a solvent which dissolves the oil but does not affect amalgam or refuse. If this solvent boils at a higher temperature than water, the water may be condensed and measured, thus determining amounts of oil and water in one operation.

Water Distilled and Oil Removed by Benzol

Due to the large amount of water in amalgams and refuse and the difficulty of accurately sampling the wet amalgam, it has been found more practicable to subject the whole amalgam and refuse to a separate distillation at 110 deg. C., in which water is caught and measured. The dry material is then extracted with benzol to determine the percentage of oil.

When a volatile liquid such as benzine is used in making the amalgam, distillation determines the amounts of both water and benzine and no extraction is necessary. Even when heavy petroleum oils are used in making the amalgam it is best to dry in the still because a small portion of the oil always comes over with the water. Drying in an open dish would thus give rise to a loss of oil, for which no account is given.

In calculating the efficiency of the process several values are of interest, three of the most important being: (1) Percentage of ash in the oil-and-water-free cleaned coal; (2) percentage of ash reduction; (3) percentage of combustible recovery. The first two values are qualitative measures of the efficiency. The percentage of ash reduction equals the percentage of ash in the raw coal minus the percentage of ash in the cleaned coal all divided by the percentage of ash in the raw coal. Percentage of combustible recovery is a quantitative measure of the efficiency of separation of combustible matter from mineral matter. It is equal to

$$\frac{C - rc}{C}$$

where C is the percentage of combustible matter in the raw coal, c is the percentage of combustible matter in the refuse, and r is the percentage of refuse by weight of the raw coal.

Difference Between Ash and Mineral Matter

In calculating the amount of combustible matter in coal or refuse it must be borne in mind that combustion of carbon is not the sole reason for loss in weight when coal is ignited in the analytical method for determination of ash. There is always a larger amount of mineral matter in coal or refuse than represented by the percentage of ash as determined by the ordinary analytical method. For example, a refuse which shows 85 per cent ash remaining after ignition to constant weight at 750 deg. C. does not contain 15 per cent combustible matter.

Several factors contribute to this loss in weight: (1) Combustion of carbonaceous material; (2) decomposition of carbonates; (3) oxidation of pyrite to Fe_2O_3 and SO_2, and combination of part of the SO_2 with oxides formed from decomposed carbonates; (4) loss of water of hydration from clay and shale.

Water of hydration varies from 2 to 12 per cent of shale. Calcium carbonate is present in small amounts in the coals of the Appalachian fields, but may constitute as much as 50 per cent of the ash of some of the Illinois coals. Parr[5] has proposed the following formula for calculating the corrected ash:

$$Corrected\ ash = Ash_w - 3C_1 + \frac{5S}{8} + 0.08\left[Ash_w - \left(\frac{34C_1}{3} + \frac{10S}{8}\right)\right]$$

where Ash_w = percentage of ash as weighed after ignition at 750 deg. C. with addition of H_2SO_4;
C_1 = percentage of carbon occurring as carbonate in the unburned coal;
S = percentage of sulphur in unburned coal.

In our work, time has not been available for determination of carbonate in the refuse and the corrected ash has been determined as follows:

$$Ash\ corrected = 1.08\ ash - \frac{21}{40}S$$

Any correction factor must of necessity be an approximation, the correctness varying according as the composition of the ash varies from the assumptions made in deriving the formula. As stated, the water of hydration which is present in shales may vary from 2 to 12 per cent. Part of the sulphur is present as organic sulphur though the formula assumes the sulphur is all present as pyrite. As little organic sulphur is removed with the refuse, the sulphur correction will be found fairly accurate.

Drivers Object to Stabling Their Horses.—Having been required to spend eight hours at work and to stable their horses, as is customery, in their own time, the drivers at No. 12 colliery of the Dominion Coal Co., at New Waterford, N. S., stayed at their work till the regular quitting time, 3 p.m., and then drove their horses to the landing, leaving them there. They were immediately reported to the management and their lamps were stopped. In consequence the mine was idle on July 8. The drivers assert that the stabling of their horses would take twenty minutes.

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[5]Parr, S. W.: Preliminary report of committee on coal analysis: *Jour. Ind. and Eng. Chem.*, vol. 5, June, 1913, p. 523.

How the Trent Process May Modify Our Coal-Preparing and Coal-Utilizing Practices*

Almost Ashless Fuel Obtained—Can Be Stored, Under Water if Desired —Oil or Product May Be Distilled—Non-Coking Coal May Be Coked—Distilled Product Will Briquet Without Added Material—Byproducts Increased

By O. P. Hood†
Washington, D. C.

DURING the war certain suggestions concerning power production were made by Walter E. Trent to the War Inventions Board, and at the request of the War Department facilities for experimental work were provided on the grounds of the Bureau of Standards.

The experiments were along the line of controlling the conditions of combustion in a closed space. In order to reduce slag troubles, experiments were carried out for removing ash from powdered coal. After the war, work along this line was continued, resulting in the Trent process, which agitates or beats together powdered coal, water and oil.

Ore preparation has lately received a new technology by the use of small quantities of oil in water for froth flotation, and although the methods, results and mixtures of the Trent process were quite different, yet the same physical phenomena of differential wetting were used, and the possibility of interesting results in fuel technology was evident. A co-operative agreement was entered into whereby the Bureau of Mines was to investigate the underlying physical and chemical facts and make them public, and the Trent Corporation was to pay the cost of the investigation.

The several reports as made have been available to anyone interested and are now to be published. While the Bureau of Mines felt justified in investigating the physical phenomena so far as might be done in a laboratory and so far as public interest might reach, no attempt was made to discover the commercial possibilities which development might bring. The question of commercial possibilities must be left for commercial enterprise to answer.

Ashless Plastic Fuel, Almost Water Free

Briefly, the process consists in agitating together powdered coal, water and oil. This produces a partly de-ashed plastic fuel, called an amalgam, the oil selecting the coal particles and largely excluding the water and ash. The amalgam can be freed from the water, which is mechanically held by agitating much in the same way as butter is worked. The amalgam can be burned in several ways. For example, it may be shoveled, or forced through pipes by pressure; it also can be stored, under water if, for fire prevention, such storage is believed to be desirable.

The laboratory results immediately suggest many interesting possible applications. For pulverizing fuel, wet grinding presents many advantages over dry grinding, provided the water can be eliminated afterward. The ability to reduce the ash in coal may make available large quantities of low-grade coals and material now considered as waste at the mines.

May Distill Oil and Make Coke or Briquets

If an oil is used which can be distilled at a temperature below the distilling temperature of the coal, powdered fuel is reclaimed from the amalgam and the oil may be reused. If a heavy oil be used and distilled to dryness, a coke product may be recovered, although the coal used may have had no coking quality. If the distillation proceed only to a heavy pitch, a mass suitable for briquetting may be made.

In distilling oil mixed with a finely-powdered material the distillates are similar to those obtained by distilling under pressure, so that the distillation of an amalgam of coal and oil gives quantities often more favorable than the sum of the separate distillations of the coal and the oil.

The amalgam can be used for a gas-making fuel, and gas-house tar emulsions can be dehydrated by mixing with powdered coal, the amalgam being retorted for further gas making. Graphite ore can be separated from its gangue, and coke can be separated from flue dust by using the Trent process. Clean coal in anthracite sludge will make an amalgam if oil is added.

This brief sketch of possibilities revealed by small-scale laboratory work shows that the field for investigation and development is large. The general results show that real benefits are physically possible by treating coal in this manner. The bureau has interested itself more particularly in the ash-separation phenomena or the cleaning of coal, as outlined in the foregoing paper, and in the distillation of the amalgam, which will be discussed in a future article.

*Comment on an article entitled "Conditions Under Which Bulk-Oil Concentration of Fine Coal Gives Best Results," appearing on preceding pages.

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New Conveyor Car Loader Fills Cars at Rate of a Ton in Two Minutes

MODIFICATION recently made by the Portable Machinery Co., of Passaic, N. J., renders its scoop conveyor adaptable to underground mine-car loading conditions. In the accompanying illustrations, Fig. 1 shows one type of this device. The machine has an inclined portion and a horizontal extension. Both the inclined and horizontal parts of the conveyor are adjustable, giving a variable discharge height. The carrying apron is a rubber conveying belt, 16 in. wide, fitted with cleats to keep the material from rolling back. It travels at a speed of 125 ft. per min. The manufacturers give the loading capacity of the machine at one ton in two minutes.

The distinctive feature of the scoop conveyor is the feed end. This can be pushed into and completely buried under the material to be conveyed. This allows

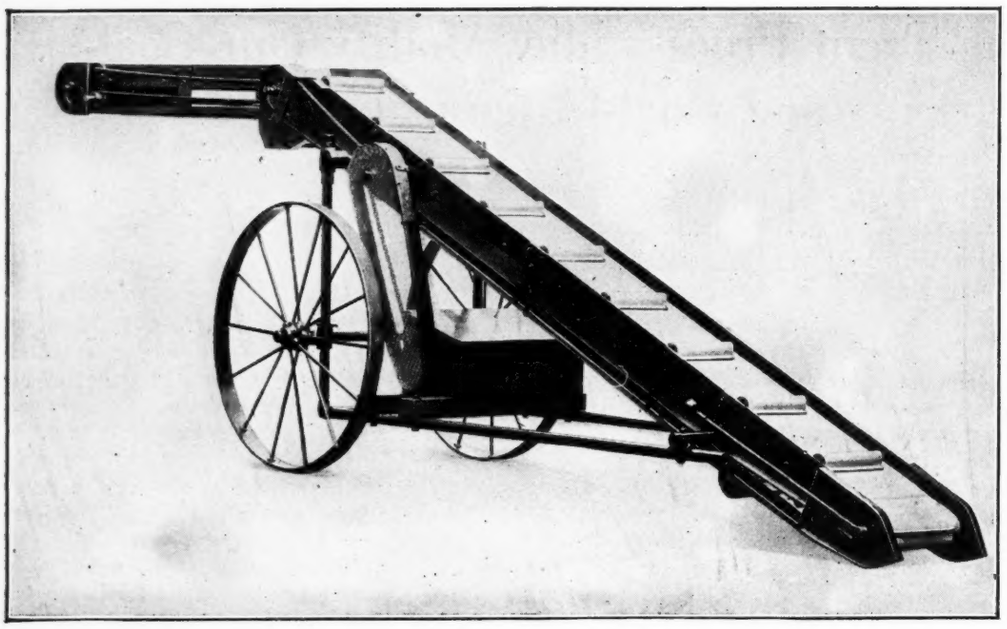


FIG. 1.

Mine Car Loader

This is a coal conveyor which raises and transports the coal but does not gather it. A man can load more material onto the low and handy point of a conveyor than into a car at a distance. Moreover the coal is delivered with less breakage, which is just as important in the mine as outside.

the material to be scraped onto the carrying belt instead of it being necessary to lift it by shovel or fork, thus saving much labor in loading.

The machine is of light weight but sturdy construction and is mounted on large-diameter wheels that can be readily rolled over ties, rails or similar obstructions. The wheels need not rest on the room track. This allows moving the feed end of the loader over a large area without swinging the discharge end away from the car.

This device is fitted with suitable electric or air motor to meet the requirements of the mine in which it is employed. The machine is built in regular, special large, and special small sizes, the latter being shown in Fig. 1.

Fig. 2 suggests the ordinary application of the standard size loader as well as the use of a removable-plank feeding platform that saves labor under conditions where it is possible to throw down the material as shown. When using the loading platform, a number of planks are placed over the feed end of the loader. The material is then brought down on the platform, after which it may be fed readily to the conveyor by removing one plank after another.

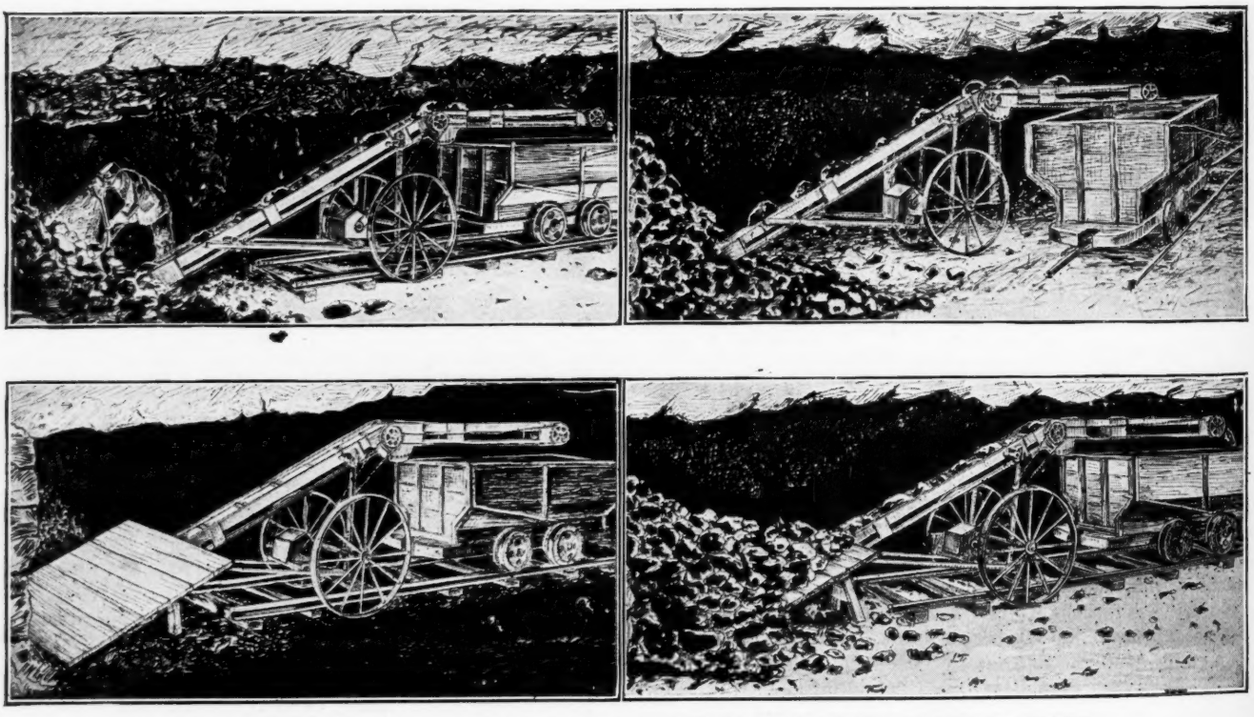


FIG. 2. APPLICATIONS OF THE MINE-CAR LOADER TO DIFFERENT CLASSES OF WORK

The upper left-hand corner shows the loader straddling the mine track and loading a car immediately behind it. Note how readily it reaches the end of the car which in hand loading has often to be filled by the miner who is trimming the load. In the upper right-hand corner the conveyor is shown on the track and loading at an angle. In the lower left corner a platform is shown with heavy legs. The coal can be blown down on this platform and scraped down from the pile into the conveyor.

Solid-Car Crossover Dump Which Clamps on Wheels; Loaded Car Returns Empty to Original Position

Cars Fed by Action of Dump Without Help of Dumpman—Car Turned Through One and a Half Quadrants and Then Righted—Rock Cars Pass Through Dump Without Being Discharged—Dashpot Regulates Speed

EACH year the solid-body mine car grows in favor. The advantages of this type of construction are so well known that they need no enumeration here. The chief objection to the use of these cars has been that means for their efficient discharge were not available. Kickback and crossover dumps have given long and satisfactory service and now devices intended for a similar purpose but adapted to handle solid-body cars are coming into the field in appreciable numbers.

One of the latest devices of this kind, known as the Twin Boy automatic dump, is shown in the accompanying illustrations. As may be seen, this is of the semi-revolving or oscillating type and moves through an angle of 135 deg. in discharging each car instead of turning completely over, as does the full revolving machine. The dump frame is built upon triangular or, rather, Y-shaped spiders through which a heavy shaft passes.

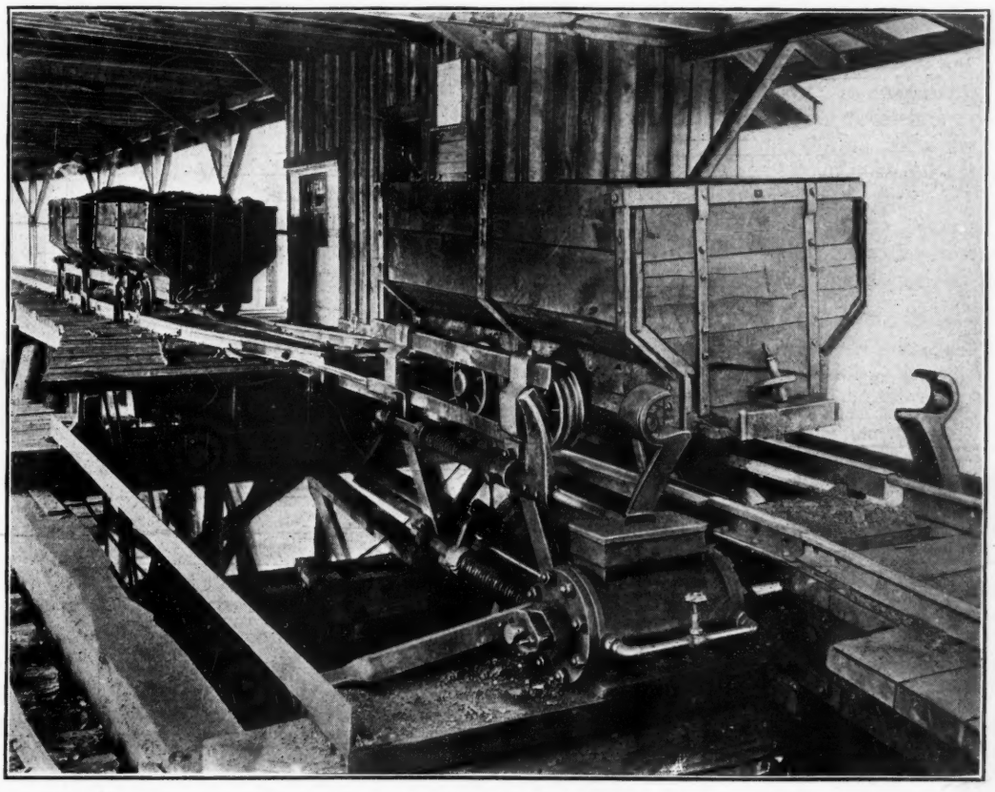
At either end this shaft is provided with a heavy half-shrouded pinion meshing with a similarly shrouded rack. The two shrouds are thus in contact at the common pitch line and the weight of the dump is supported by and rolls back and forth upon these shrouds as cars are dumped. An oil-filled cylinder with a piston the rod of which is connected to the main shaft and a throttling bypass extending from end to end controls the speed of dumping.

The two tracks are offset upon opposite sides of the supporting shaft when in the normal position or when ready to receive a loaded car. Thus one is offset a certain distance to the right of the supporting shaft while the other is offset an equal distance to the left. As the track leading to and from the dump is fixed in position the shaft of the dump must move sidewise upon the discharge of each car a distance equal to twice the offset of the cars. The length of the rack and the stroke of the piston are made of corresponding length.

Rapidity of Discharge Regulated by Dashpot

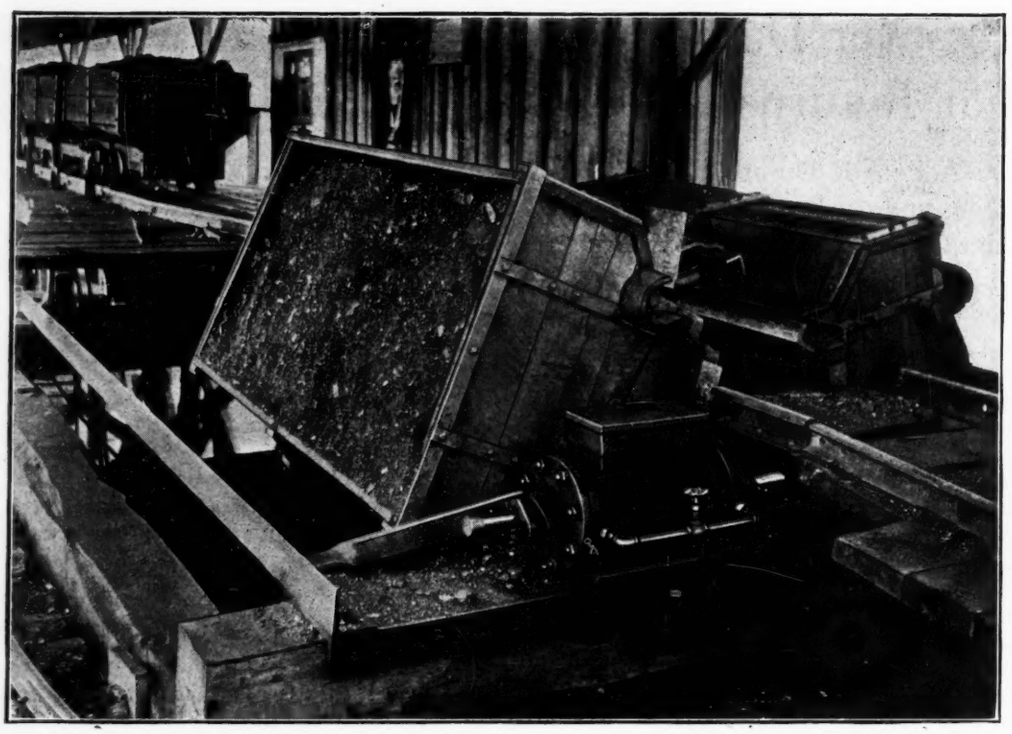
The rack is surrounded by a box cast integral with it and which is kept full or partly full of oil. Both it and the pinion are protected by a tight sheet-iron cover excluding dirt and coal dust. The valve in the bypass connecting the two ends of the cylinder may be adjusted to throttle the flowing oil to any desired degree, thus controlling the rapidity of lateral movement and consequently the operating speed of the dump.

Each of the two tracks upon the dump is provided with a pair of holding-down angles gripping the car wheels, a pair of horns and a latch. A length of rail just in front of the dump is hinged at one end. A full car passing over this length of track depresses it, throwing into action through a system of levers the



Automatic Dump

The cars are held by the wheels. Where the equipment is of various shapes but has standard wheels this kind of dump has that fact as a further advantage over others which grasp the cars by the sides. The oil dashpot which regulates the speed of dumping can be seen in the foreground. A car is being discharged on the far side of the dump, but it cannot be seen in this view. Its downward movement has just lifted the empty car back into place on the track.



Cars Seesawing

The loaded car is descending. In doing so it brings up the empty car, which can run off the dump and be replaced by a load. This new load by seesawing the apparatus in the opposite direction will lift up the original loaded car, which by this time will have discharged its contents into the chute. The speed can be regulated to suit the needs of the mine. The cars in dumping do not actually revolve but turn through 135 deg.

trip brake mechanism two or three car lengths ahead of the dump. This brake is an angle iron that engages and presses down upon the tops of the wheels of the cars in the trip. The construction of the trip brake is such that its braking effect is the same regardless of the condition of the wheels and rail. Thus, on a rainy day when the track is wet, when a car tread is oily or some similar abnormal condition prevails, the angle rail above the wheels sets down upon them with a pressure sufficiently great to counteract the effect of the lubricant and a moving trip is brought to rest in practically the same distance as would be traversed if the wheels were dry.

Operation of this dump is controlled by means of the hand lever shown in the side view. Normally this hand lever stands in the central position. To start operation the lever is moved backward or to the right to the limit of its travel. If left in this position the operation of the dump will be entirely automatic and uncoupled cars will pass to it, be discharged and move on out again successively at the highest possible speed until the entire trip has been dumped. When the lever is in this position the hinged length of rail is not latched down during the rotation of the dump, as is normally the case, but the dump may be so adjusted as to right itself and be in readiness to receive the next car before it arrives.

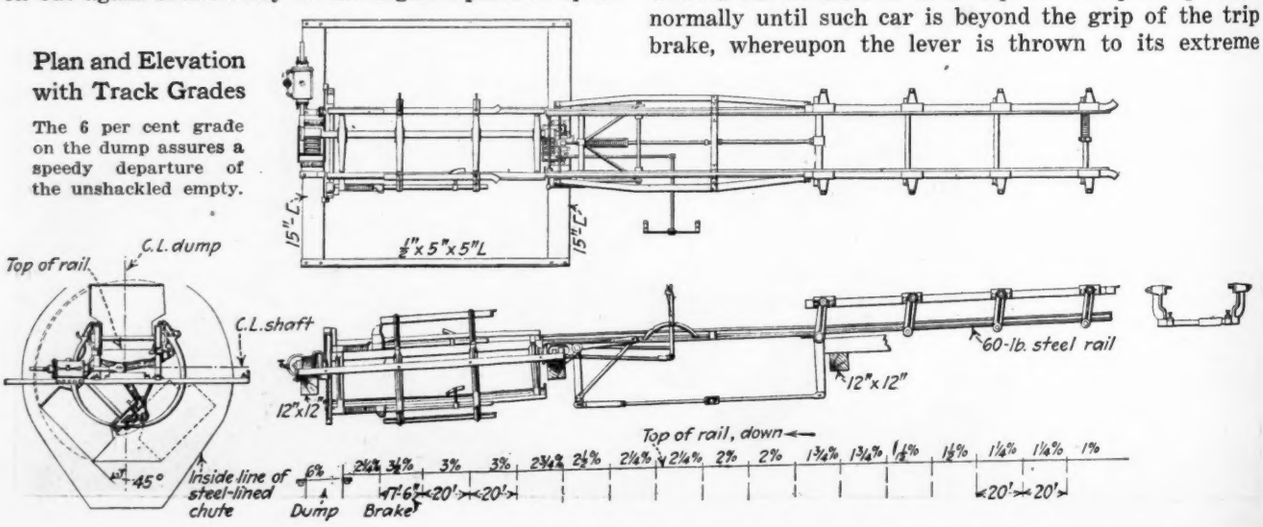
If the lever is first depressed (to the right) and immediately returned to a vertical position one car at a time will pass through the dump, but this apparatus may be so set as to discharge the cars very slowly, the hinged rail being latched down until the dump reaches its upright position.

If the lever is thrown to the left from the central position as far as the first notch the brake remains latched and dumping operations cease except that the dump is free to move. If the lever is thrown to the left to its extreme position or to the second notch the entire mechanism is locked in place.

This renders it possible to pass cars across or through the dump without discharging their contents. Thus, when a car of slate is in a trip the dump is operated normally until such car is beyond the grip of the trip brake, whereupon the lever is thrown to its extreme

Plan and Elevation with Track Grades

The 6 per cent grade on the dump assures a speedy departure of the unshackled empty.



left position. This allows the slate-laden car to pass through the dump and be shunted to the slate track either before or after going through the kickback.

The only force utilized in the operation of this dump is gravity, the arrangement being such that the descending loaded car raises the empty. The expense for power of operation, therefore, is nothing and the only cost involved after installation is that of maintenance and other fixed charges. The dump is sturdily constructed and in those plants where it has been installed it has given an excellent account of itself. This machine was designed by W. R. Coleman and is manufactured by the Anniston Electric Steel Corporation, of Anniston, Ala.

Mining Losses in Middle West and Means That May Be Taken to Eliminate Them

CLOSER attention to the economics of coal mining was urged by J. J. Rutledge, superintendent of the Central Experiment Station of the U. S. Bureau of Mines, Urbana, Ill., in an address delivered before the recent meeting of the Illinois Mining Institute.

"Coal is now selling with great difficulty," Mr. Rutledge said. "I have been told that screenings in central Illinois are being offered for sale as low as 50c. per ton, which is certainly far below the cost of production. Lump coal does not seem to have suffered as badly as fine coal, but there has been some cutting of prices in this grade also.

"Some of the mines in the Southwest have not worked since last December. Others—railroad-owned mines or mines supplying railroad coal exclusively—are working only from two to three days a week. One operator with thirty years' experience in the Southwest district told me he had never seen a condition like the present one. He said there was no market for fine coal, yet he could not help making some fine coal, if he was to make lump coal, and the loss he was compelled to suffer on the fine coal would compel him to charge at least $15 per ton for his lump coal in order to come out even. One company had 56 'no-bill' cars of fine coal on the tracks and the railroads were refusing to furnish any more cars for the loading of fine coal."

Middle West Needs Greater Coal Recovery

Mr. Rutledge urged that there should be some changes in the methods of working coal. Special attention should be paid to greater recovery. In many mines at present worked by the pillar-and-room system the maximum recovery varies from 45 to 55 per cent, and the remainder of the coal is left in such a condition that it is almost impossible economically to recover it. In other words, Mr. Rutledge said, the coal is irretrievably lost. By improving mining methods, such as panel longwall or pillar-and-room retreating, the recovery can be increased from 45 to 55 per cent, which is the present extraction, to 80 or 90 per cent, with a considerable reduction in the cost of production.

"If by the expenditure of an equal amount of entry driving and brushing from 25 to 35 per cent more coal can be recovered, mining costs can certainly be reduced by adopting the improved methods of mining," said Mr. Rutledge. "Estimates of the amount that it is possible to reduce the mining cost by improved methods of mining vary from 15c. to 25c. per ton. Moreover, the quality of the coal produced by these methods will be better than that produced by the old method, and this will be an additional amount on the right side of the ledger. When our coal is gone, it cannot be replaced and is gone forever."

Proper scientific study of subsidence would be of great economic importance, Mr. Rutledge said. As an example of the economic importance of such a study Mr. Rutledge cited an important coal field where the pillar-and-room method of mining prevails. This field is now producing an amount of coal which has a royalty value of $300 per acre. Under a proper system of mining, involving good recovery, this amount should be increased to at least $500 per acre, the surface and coal being separately owned. Is it not much better to mine this coal exhaustively and to neglect the value of the surface, when the difference between the coal and surface value is so great? he asked.

Mr. Rutledge also spoke for more rigid inspection of boilers, the use of improved devices for underground haulage to replace the slow, troublesome and expensive animal haulage, and the use of improved mining methods to decrease the necessity for coal washing. He also expressed the belief that underground loading machines will soon be found at work in many coal mines, even as they are now in many metal mines.

"One of the greatest defects in the present system of mining is the loading of slate and rock underground and the transportation of them to the surface to be deposited on the rock dump," he said. "Every car of rock or slate hoisted to the surface at least takes the place of one car of coal and possibly two cars. In other words, if the miners were not loading a car of slate or rock they probably would be loading it with coal. The driver would be hauling coal, a revenue-producing load, instead of that which is only an expense and a waste. Moreover, it is necessary to maintain expensive dirt dumps on the surface, and this involves an expense. The haulage of heavy slate or rock in mine cars soon destroys them and tends to cause them to be in poor repair at all times.

Heavy Shot Firing a Cause of Much Expense

"Mine accidents and disasters are among the greatest sources of expense in mining coal. Under the dangerous method of blasting coal off the solid that is followed in some states, fatal accidents to shotfirers are frequent. In one state, where blasting off the solid is almost universally followed, some mines have lost by successive shotfirers' explosions as many as eight or ten shotfirers; that is to say, any one of several mines have had from eight to ten shotfirers killed in a period of time varying from eight to fifteen years.

"One mine is said to have actually lost fifteen shotfirers in twenty years of operation, one or two shotfirers having been killed at a time. The average amount paid for a shotfirer's death claim alone, not including damage to the mine and loss of output to the operator and of wages to the miners and other employees, has been from $3,000 to $3,500. Several recent shotfirers' explosions have cost the mining companies concerned amounts varying from $20,000 to $50,000, including damages paid to heirs of deceased shotfirers and repairs to underground workings.

"Surely it would be cheaper, speaking only from a cold, money-making standpoint, to abolish such a dangerous method of producing coal and endeavor to mine the coal by use of mining machines and permissible explosives."

Problems of Operating Men

Edited by James T. Beard

Assistant Foreman to Mine Superintendent

Opportunity Awaits the Deserving Worker. The Ability to Fill Higher Positions Is Often Only Discovered When the Emergency Arises for a Man to Show His Worth

NUMEROUS letters in *Coal Age* have referred to the disadvantage under which a mine foreman works when his superintendent has little practical knowledge of mining. In reading these letters, I have asked myself: Why will coal operators appoint men with little mining experience to the position of superintendent?

There are doubtless many reasons for such appointments. The man chosen may be a close friend of the operator; or his knowledge of bookkeeping and accounting may have gotten him the position. In small operations, it frequently happens that the store manager acts as superintendent of the mine.

In every industrial undertaking, whether large or small, the expense of operation, involving the necessary outlay for labor and material, is a dominant factor, and frequently blinds the eyes of the operator to every other consideration. The fact remains, however, that if affairs outside of the mine are conducted with little regard to inside requirements, things are badly disorganized.

The Business and the Operating End of an Organization

Whenever a mine operation becomes large enough to have a separate business organization and operating department it is time to get away from the combination official, whose authority is always more or less uncertain in one branch or the other of the organization.

Coal mining is a business proposition and has its business side. It is likewise an operation requiring practical mining knowledge and experience. The man in charge of operations and the handling of men must have, besides his practical knowledge and experience, considerable tact and a pleasing personality. His success will depend most largely on his ability to surround himself with capable officials and workers.

Mine owners are frequently at a loss to know whether it is better to place a business man having little or no mining experience in charge of their organization, or to choose a mining man who has the necessary experience, but who has never interested himself enough to inquire into the relative costs of the different supplies and material needed in the mine. Both of these types of men have a one sided viewpoint that will undoubtedly affect the success of the undertaking.

Just here, I recall a remarkable incident where the worth and ability of an assistant foreman was brought to light through circumstances that were unforeseen. The incident shows how a short-sighted mine management is prone to overlook the ability of some humble worker and seek elsewhere for men they need to fill positions of trust.

Selecting a Mine Superintendent

For a considerable time, a certain mine owner had not been able to find a capable mine superintendent. He had employed five men in that position in a single year. Three of the men, though having mining experience, were unable to get along with their men. The other two, for lack of experience, left the men to do largely as they pleased.

It so happened that when the last superintendent resigned he took the foreman with him, much to the regret of the owner because the foreman was one of the kind who expressed no ambition to rise above that position. Some companies have a knack of making their foremen feel that way, being prone to regard them as better fitted for the positions they hold than for a place higher up the ladder.

Automatically, the assistant foreman then became acting foreman. The manager told him to do the best he could until another man could be found. Indeed, several weeks passed by, during which time the assistant foreman performed the duties of both mine superintendent and foreman.

In the meantime, several men were had under consideration by the owner, who had decided to get a man of known ability from another state. The man sought had promised to come after giving suitable notice to his employer, but failed to show up at the mine.

In this manner, a month or two passed; things looked better and were going more smoothly every day. The result was that the former assistant and now acting foreman was one day called into the office and informed that he had been appointed superintendent. He was told to look around for a high-class foreman and give him charge of the mine, which he did, choosing one of his fellow assistant foremen for that position.

The quality that entered into the new superintendent's make-up was the trust and confidence he placed in each man, whom he regarded as capable of performing the work given him. His policy was to make every man feel that he must be master of his position and responsible for the work in his hands. Every man felt that he was needed, but not so badly that the job could not get along without him.

Naturally, there were a few who took advantage of the fair treatment given them, regarding themselves as of so much importance that the place would close down if they resigned. These incompetents were weeded out by turns and are now working for other companies, but looking for the happy day when the ex-assistant foreman will send for them to return, to keep the place from going to smash.

Pikeville, Ky. GEORGE EDWARDS.

Foremen's Work Made to Count

When work counts for nothing in the mine it is a sign of poor management. A good mine foreman will make his work count.

KINDLY allow me to say a few words on the subject introduced by W. H. Luxton, *Coal Age*, May 26, p. 955, in regard to a mine foreman's work often counting for nothing. Where that is the case it is my belief that the foreman makes a poor manager or organizer.

In his letter, Mr. Luxton named several causes that operate to make the efforts of a foreman fruitless. First attention is drawn to the lack of suitable transportation facilities in the mine. Then, he mentions poor equipment in the way of mine cars and tracks being in bad condition, a poorly arranged system of haulage and insufficient power.

By referring to these important items, the correspondent shows that he understands the necessity of having a well-equipped mine if coal is to be gotten out and sent to the tipple at a low cost and the mine worked successfully.

For some twenty years past I have been a certified mine foreman in Kentucky and Tennessee. In both of these states the mine law requires that the foreman must devote his whole time to his duties in the mine while it is in operation, keeping a careful watch over the ventilation and timbering.

The foreman must visit each and every working place in the mine, see

that the proper amount of air is in circulation and breakthroughs made at the required distances apart in all room and entry pillars. These are but a few things to which a mine foreman must attend daily. To satisfy the management he must keep the coal moving or he will be asked to explain the reason why, which is not always easy to do.

Foremen Must Employ Needed Competent Assistants

Now, clearly, it is a practical impossibility for a foreman, however active, to be everywhere in the mine at the same time. In order to be efficient as a foreman, he must employ competent assistants and train them, each for their respective duties.

For example, every foreman should have a good trackboss who understands tracklaying; a head timberman to look after the timbering of roads and erecting brattices where such are needed to conduct the air to the working face, and a good driverboss to look after the drivers and keep the coal moving.

These several bosses must employ practical men and train them for their work. When that has been accomplished the foreman has the mine under his full control. By keeping in touch with his men there will be little cause to complain that his efforts are fruitless. Everything he does will count for something.

Mine Electrician Needed

When a mine is equipped for electric haulage it is very important to employ a competent electrician to take charge of the work of wiring the mine and bonding the rails. Another matter that an efficient foreman will not omit is to supply the men with good tools without which little can be expected to be accomplished.

Throughout the mine there must be strict discipline. Every man must understand that he is expected to give eight hours work for eight hours pay. If there is one man on the job who is a time-killer there will soon be others following his example. It is up to the foreman to get rid of such men as quickly as possible.

To my mind, a really efficient foreman will so organize his force and instruct his men that they will not require him to run after them and see that they are doing their work. The work of such a foreman always counts.

Crawford, Tenn. Oscar H. Jones.

How to Americanize

Practice of American ideals the most effective means of impressing these on the mind of the foreigner. Americans must live up to the ideals on which this country is founded.

With much interest and enjoyment I read the letter of Henry Bock, June 2, p. 998, and feel that he has expressed the truth in regard to Americanizing the large numbers of foreigners that are constantly coming to this country.

We *talk* about American ideals and the principles for which America stands, but how many of us Americans live up to those standards and ideals of which we are so proud? Do not our actions often belie our words and what is the effect on the foreigner who is watching us?

My experience since coming to this country some years ago is that its form of government is the best in the world. No other country affords as many opportunities to the working man for advancement. Speaking for myself, I could not have hoped to have done as well in the old country or to have stood the same chance to succeed there as I have in coming here.

Living American Ideals

For this reason, it has been my constant endeavor to live up to what I understand are American ideals. I resolved that if ever I had authority to direct and influence foreign-born workmen I would see to it that they, one and all, got a square deal, and to this resolve I attribute what success has been mine.

It is a pleasure to know that I enjoy the respect and confidence of that class of foreign labor with which I have been associated, and I am glad to say my treatment of them has met the approval of the coal companies who have employed me. As a rule, the company wants its foreign labor treated fairly in every respect.

If I interpret Americanization correctly, the term means living up to the principles of our American Constitution. None can deny that the framers of the Constitution had faith in God. If I am right, it was their first consideration, and true Americans must have the same faith and practice the principles of the Golden Rule, in any attempt to Americanize the foreigner.

Where We Fail

How is it possible, let me ask, to bring the foreigner to a true conception of American ideals when we permit the desecration of the American Sabbath, and are willing to discredit the provisions of the 18th Amendment; or, in other words, drift from these fundamental principles of our government on which this country was founded. Can we not see that all this is un-American.

Not long ago a lady, sent from Washington, called on me to ask my help in starting a night class for foreigners, as an effort to further Americanization. The government was willing to furnish the books, a teacher was to be engaged whose pay was to come from a small fee obtained from each one in the class.

The first night our efforts were rewarded by a large attendance; books were distributed, officers elected and the work organized. Besides the American Constitution, the book contained a few questions on good citizenship, such questions as a man must be able to answer when going before a judge to take out citizen papers.

The plan failed of its purpose, however, as at the next meeting night only four men were present and the second night but two remained. What the foreigner most needs is a true example of the meaning of Americanization. He must be taught to read and write the English language. If I am rightly informed there are whole communities of foreigners where not a word of English is spoken.

Speaking of the force of example, what can we expect when, as occurred in a mining town where I lived a while ago, the Squire sold liquor around among the foreigners, and when they were brought before him in a drunken condition he imposed on them a fine. In this manner he got revenue from them going and coming. Through our failure to live up to American ideals, we lose in the estimation of the foreigner and our influence counts for naught. Thomas Hogarth.

Indiana, Pa.

ANOTHER LETTER

Without doubt, as stated by Henry Bock in his interesting letter, *Coal Age*, June 2, p. 998, it is difficult for a foreigner to readily grasp the true principle and meaning of our form of government. The average foreigner labors under the mistaken idea that here every man is a law unto himself.

Many foreigners come to this country with the intention of becoming good citizens. They do the best they know how and, from this class, there is nothing to be feared. Another class, however, has no respect for any form of government and the men seldom have any intention of becoming citizens. They are here to make money and return in a short time to their own country. It is this class that gives the most trouble.

In my opinion, the most effective means of Americanizing foreigners is to compel them to learn and speak the English language. There are several hundred periodicals now printed in foreign languages and published in this country. Some of these, I regret to say, have not been wholly loyal to our government and its institutions. The tendency of such is to keep alive the foreign spirit, which is a great hindrance to the work of Americanization.

The Immigration Problem

We boast much of our country, its high ideals, institutions and democratic government. But, unless we adopt a different policy toward foreign immigration, we shall wake up some morning to the realization that the country is no longer truly American. The question of immigration is one of greatest importance.

Richard Bowen has well remarked, *Coal Age*, Feb. 17, p. 319, "The standard of our miners is measured by the character and reputation of those charged with their supervision and instruction." That being true how important it is that mine officials shall be

men of good character and a strong commanding personality.

The mine superintendent or foreman who has no further thought or interest in his miners than the number of tons of coal they can load, or the manner of work they perform, will never raise the standard of character among citizen miners or make a good Americanizer among foreigners. It requires a noble-hearted Christian bearing, which is the most valuable asset in the work of Americanization.

Before we can succeed in the work of elevating the standards and Americanizing other people, we must first return ourselves to the true American ideals from which we have departed in a great measure during the last few years. We must put in practice the principles underlying those ideals.

THE GOLDEN RULE WILL BRING PEACE

There will always be those who will discourage the idea of applying the Golden Rule, in attempting to assimilate the interests of operator and employee and adjust their differences. To my mind, this can be done and it is the only means by which peace and harmony will be established between these two elements in the industrial world.

Instead of being friends with common interests at stake, capital and labor are today arrayed against each other in a death struggle, each viewing the other through its own selfish glasses, those of Capital being colored green, while those of Labor are smoked with hatred. Is it any wonder that each sees only wrong in the other.

If American operators and miners would Americanize their ownselves by taking into their hearts and lives some of the Gospel grace that is an attribute of American ideals, peace and prosperity would not be far away, and the effect would be to Americanize the stream of foreign immigration now pouring in upon us. Indeed, on so doing depends the future welfare and safety of American institutions. JOHN ROSE.

Dayton, Tenn.

Loose End in Blasting Coal

Does the Bituminous Mine Law of Pennsylvania make it illegal to blast coal on a loose end, without first mining the shot, as the reading of the law would seem to imply?

ATTENTION was drawn, a short time ago, by an inquirer in *Coal Age*, Apr. 14, p. 676, to a section of the bituminous law in Pennsylvania, defining the manner in which coal must be blasted. A little later, June 2, p. 999, the question was discussed by W. H. Luxton, who argued for a clear understanding of the intended meaning.

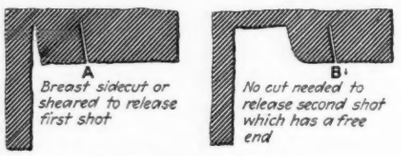
Taking the law as it reads, it would seem that the coal must always be mined before it is blasted. A literal interpretation would seem to forbid the blasting of coal from a loose end, unless it is previously mined, which every practical miner knows is unnecessary.

The section referred to is to Art. 4, Sec. 9, which reads: "The mine foreman shall direct that the coal is properly mined before it is blasted. 'Properly mined' shall mean that the coal shall be undercut, centercut, topcut or sheared by pick or machine, and in any case the undercutting shall be as deep as the holes are laid."

In view of the fact that four separate locations are named in which the coal must be cut, it is evident that the term "undercutting" means a cut made in the bottom of the seam or below the coal and cannot be used in a general sense. Instead the word *cutting* should be used in speaking of the depth to which the coal is cut.

Since the law requires the mine foreman to "direct that the coal be properly mined before it is blasted," and specifically defines the meaning of the expression "properly mined," the question may naturally be asked, Does the law forbid the blasting of coal on a loose end without first mining the shot?

Assume, for example, that the coal, in a breast, has been sheared or side-



BLASTING A BREAST OF COAL

cut on one rib. A hole is then drilled, as shown at A on the left of the accompanying figure. In compliance with the law, the depth of the hole must not exceed the depth of the shearing or sidecut. After the shot has been fired and the broken coal removed, the breast will present somewhat the appearance shown on the right of the figure.

It is common practice to continue, now, shooting this breast by drilling a second hole at B and firing the shot, then a third and a fourth till the entire breast is finished. But these do not require to be mined in order to give the powder an opportunity to perform its work. The coal removed by the first shot has provided what is termed a "loose end."

Frankly speaking, it would be a waste of time and labor to mine any but the first-shot in this breast. It cannot be assumed that the law is intended to forbid the blasting of coal under these conditions, as that would be contrary to common practice.

If it is considered that no additional cutting or mining is needed in a breast of coal after the first sidecut has been made, all that the law should state is that no blast shall be fired without the coal is first mined or sidecut, or there exists a loose end that will give the charge an opportunity to perform its work.

Such a construction of the law, in reference to blasting coal, would cover the conditions that exist in pillar work and when mining an irregular breast of coal where ample opportunity is afforded for the shot to free itself. As every good miner knows, a shot must have a free end to be effective and safe. This is only another instance where our lawmakers lacked the necessary practical knowledge that would have avoided this ambiguity.

Holsopple, Pa. I. C. PARFITT.

Inquiries Of General Interest

Working a Steep Seam of Coal

Main Slope Driven on the Full Dip with Gangway Levels Turned to the Right and Left of the Slope Headings and Rooms Driven to the Rise of Each Pair of Levels

KINDLY permit me to present the following proposition for discussion in the columns of *Coal Age:* We are about to develop a seam of coal on a thirty-three per cent grade, running at right angles with the face of the coal. What I want to know is the best method of opening and developing the mine with a view to the economical working out of the coal and having due regard for safety; also I would like to ask regarding the comparative cost of working inclined and level seams.

R. E. HOWE.

Vice-President and General Manager,
Shamrock, Ky. Climax Coal Co.

We understand that this seam of coal has a uniform dip corresponding to a grade of thirty-three per cent, and that the direction of the dip is at right angles to the natural face cleavages of the coal.

In reply, we would suggest driving the main slope headings, say three or four abreast, depending on the nature of the coal with respect to the presence of gas and water. These headings should be driven on the full dip of the seam and, as they advance, gangways or levels are turned to the right and left of the slope headings, inclining them slightly up the pitch from a right angle, so as to provide a grade of about one per cent in favor of the loaded cars. The gangways should be driven in pairs, making the upper entry of each pair the haulage road and the lower one the air-course, which is also used for drain-

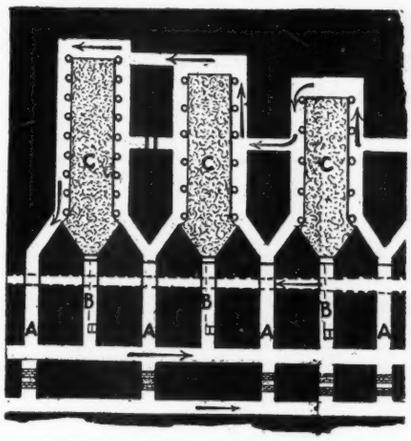
age. Here also, as the gangways are advanced, breasts are turned to the rise at regular intervals.

Unless conditions require otherwise, it will generally be preferable to drive the gangways to the boundary line before turning breasts. The coal can then be worked out on the retreating system; but the adoption of this plan will depend chiefly on the demand for coal and the amount of capital invested.

The plan of working out the coal in breasts driven to the rise is that known as "Chute Mining." As shown in the accompanying figure, loading chutes, B, B, are driven up the pitch on, say forty-foot centers. These are driven narrow, eight or nine feet in width for a distance of from six to eight yards where they are widened out on an angle of forty-five degrees to the full width of the breast. As shown in the figure manways, A, A, are driven up between the loading chutes to a point where they are divided or branched to connect with the manways on each side of each breast.

A strong battery is built at the head of each loading chute by which the flow of coal is controlled as required. As the coal is mined at the face of the breast, it falls into the chute, C. This portion of the breast is kept filled with the broken coal, which affords sufficient support for the miner while he is at work at the face.

What is called a "monkey" airway is driven across and over the chutes in



ILLUSTRATING CHUTE MINING

thick seams, its purpose being to maintain ventilation across any chute that may become blocked. The proposition is open for further discussion.

It is not possible to give any general idea of the comparative cost of working inclined and level seams, as this will depend too largely on conditions.

Examination Questions Answered

Examination, Foreman and Assistant Foreman, Fifteenth Anthracite District

(Hazleton, Pa., April 19, 20, 1921)

QUESTION—*What are the dangers and consequent results arising from not having accurate and complete surveys of the workings of a mine?*

ANSWER—The principal danger consists in the live workings penetrating any adjoining abandoned workings that may contain accumulations of gas or water. There is also danger of not taking needed precautions when the workings are driven under water courses, lakes or ponds. Without a careful survey and map of the workings, these may be extended beyond the property line, or there may result the loss of much coal by reason of a haphazard method of mining that will generally induce creep or squeeze in different portions of the workings.

QUESTION—*Explain how mine workings are plotted on the map and to what scale. If between two lifts shown on a map, there is a horizontal distance of 150 ft. and a vertical distance of 200 ft. what is the pitch distance and what is the average pitch?*

ANSWER—Mine workings are plotted as if projected on a horizontal plane, except in cases where the seam is very highly inclined and it is advisable to make the projection on a vertical plane or otherwise, giving the elevation at numerous points throughout the mine. The Anthracite Mine Law of Pennsylvania requires the mine map to be drawn to a scale of 100 ft. per min.

The pitch distance corresponding to a horizontal distance of 150 ft. and a vertical distance of 200 ft. is $\sqrt{150^2 + 200^2} = 250$ ft.

Since the rise is 200 ft. in 150 ft. horizontal distance, the average pitch of this seam is 4 ft. of rise in 3 ft. horizontal distance.

QUESTION—*If, in a gaseous mine, electricity is used for motive and other power would you consider it safe to extend the conducting wire beyond where the ventilating current has been properly established?*

ANSWER—If a mine is generating explosive gas there is always danger in extending a live wire or conductor into a place where the gas is liable to accumulate. Such conductors should only be installed on roads, travelingways and other places that are properly ventilated.

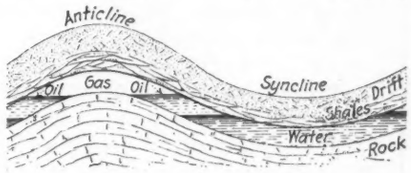
QUESTION—*If a breast is driven a distance of 500 ft. on a rising grade of 10 per cent, what should be the distance represented on the map of the mine, and what height has the breast attained above the gangway level?*

ANSWER—In this case, the pitch distance is 500 ft. and, the grade being 10 per cent, the grade angle or angle of inclination is that whose tangent is 0.1, or 5° 43′. Then, since the cosine of this angle is 0.995, the horizontal distance corresponding to the length of the breast is $500 \times 0.995 = 497.5$ ft., or 4.975 in., as measured on the map.

The total rise of the breast above the gangway is 49.75 ft. In this calculation the percentage of grade is estimated on the horizontal distance, which is common practice in seams of moderate inclination.

QUESTION—*Show by sketch what is meant by an anticlinal and a synclinal.*

ANSWER—In geology, the term "anticlinal" refers to the ridge and the term "synclinal" to the basin formed where the strata have been upheaved and depressed by geological disturbance. Both the anticline and the syncline are plainly marked in the accompanying



IDEAL GEOLOGICAL CROSS-SECTION

figure, which also shows the relative accumulation of water, oil and gas in the strata. These accumulate in permeable strata in accordance with their relative specific gravity, the water being the heaviest, the oil next and the gas the lightest of the three.

QUESTION—*How would you proceed to prospect for coal? What would lead you to think that there is coal in the territory you were prospecting?*

ANSWER—The surest method of prospecting for coal is to sink drillholes from the surface with a core drill. The work should be in charge of a competent driller and all the cores brought to the surface should be preserved and numbered. These holes should be sunk at numerous points on the property and a true record kept of the depth of the hole and the elevation of the surface and the thickness of the coal at each hole.

In searching for coal, it is necessary to have a knowledge of the geological formation and the coal measures. At times these may be studied from the outcroppings exposed to view by removing the drift. Where the coal measures outcrop on streams and waterways, there is generally to be observed a discoloration of the surface and the water in the stream, due to the presence of oxide of iron in the strata. More accurate information of the quality of the coal and thickness of the seam is generally to be obtained from adjoining workings.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

INSTEAD of waiting for some mysterious set of forces to restore good times, the people of the United States have settled down to the grim and sober business of working out their own salvation, writes Archer Wall Douglas, chairman of the Committee on Statistics and Standards of the Chamber of Commerce of the United States, in his monthly review of business conditions in the August number of *The Nation's Business*. While the return to better times is certain to be slow, he says, there can be no doubt as to the final recovery.

"The story of the present business depression," says Mr. Douglas, "is very similar to other depressions which have occurred during the past half century. The beginning of the end of speculation and overexpansion came with restriction of credit, which put a sudden crimp in the volume of business and started prices downward on their long journey of declines. Then followed the slowing down in industry, the incubus of much unemployment, and all the attendant evils of hard times. After the first shock there were a flood of forecasts of an early return to former conditions and the passing of those ills which afflicted the country. Invariably the prophecies came to grief.

"One of the earmarks of past depressions was the fantastic schemes advanced to prevent the return of such eras. These schemes included the stabilization of prices and doing something to the currency so that its purchasing power would always be the same. And there are those among us who take these theories seriously today just as our forbears did in their day. We have at least one consolation in this generation: that out of the welter of past misfortunes we have learned the lesson of a sound financial system as embodied in the Federal Reserve Bank.

"The chronicle in industrial life is one of better business in leather, especially in boots and shoes; lower prices in an increasing number of makes of automobiles, and of good business in automobile sundries; lower prices in oil, with the likelihood of consequent decreased production; continued dullness in mining; some improvement in clothing; production in steel and iron down to lower levels and with reduced prices, yet with slight increase in sales of some of the finished products; a generally good movement in summer seasonable goods; slow increase in construction as the costs of material and of labor decline in different sections, more particularly in the large cities; better wholesale trade in general but of smaller volume of retail business in the large centers."

Holiday Hurts Freight Loading

Railroad car loadings decreased 135,110 in the number of cars loaded on the principal railroad systems during the week ended July 9, as compared with the total of the preceding week, the American Railway Association announces. This reduction was attributed to the observance of the Fourth of July holiday throughout the country.

Idle freight cars on the roads of the United States numbered 369,925 on July 8, a decrease of 4,266 from the previous week, according to American Railway Association figures. The latest statistics compiled by the American Railway Association showed that the number of bad order cars in use on July 1 stood at 354,611, or 15.4 per cent of the total. On June 15 the total was about 246,000 and on June 1 approximately 340,000 cars. Some improvement, however, is expected to be shown in the figures since the first of the month, as some repair work has been started in the railroad shops since the July 1 wage cut became effective.

Union Pacific Re-employs 1,500

The Union Pacific R.R. announced July 17 that it had taken on 1,500 workers, who were laid off with the slump in business, on the Mountain division. The re-employment of the men is taken to indicate the revival of business, and it is expected more will be taken back if economic conditions continue to improve.

2,500 Laid Off at Fore River Yard

The Bethlehem Shipbuilding Corporation announced July 15 that 2,500 of its employees at the Fore River yard would be laid off indefinitely. The 1,500 other workers will be put on a part-time basis.

Locomotive Shop Reopens

The locomotive department of the Chicago Great Western shops at Oelwein, Iowa, reopened Monday, July 18, after two months' idleness, employing several hundred men.

Arms Plant Closes for a Month

The Smith & Wesson Co., of Springfield, Mass., firearms manufacturers, announces that its factory closed July 16 for one month, part of which time will be devoted to inventory. The concern has been running full time and with a full quota of employees.

Danbury Felt Mills Running Again

The Danbury Felt Mills, of Danbury, Conn., have resumed operations at nearly full capacity, after a prolonged period of inactivity. This company completed the erection of its mills about a year ago.

Big Order for Canadian Car Co.

The Russian Soviet Government has given the Canadian Car & Foundry Co., Ltd., a $2,000,000 order for 500 50-ton tank cars, W. W. Butler, president of the company, announced July 19 on his arrival from Europe.

Buyers Swarm to New York

More buyers for retail and jobbing establishments were registered in the wholesale textile and apparel market in New York City July 23 than has been the case at any time this year. The buyers are coming principally from the Middle West, South and East.

Automobile Sales Increasing

Statistics compiled by the Automobile Chamber of Commerce for companies producing about 75 per cent of the country's output show that shipments during June were about 8 per cent in excess of those of the previous month and 60 per cent in excess of those of June last year.

OFFICERS NATIONAL COAL ASSOCIATION
1921

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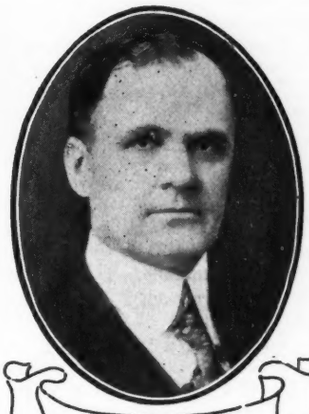

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Cushing Asks Reconsignment Data of Wholesalers in Laying Traffic Foundation

GEORGE H. CUSHING, managing director of the American Wholesale Coal Association, on his return from the Chicago meeting (July 11 and 12) of the reconsigning committee of the National Industrial Trade League issued a questionnaire on reconsigning to the trade, accompanied by the following statement to the membership of his association under the caption "Laying a Traffic Foundation," in which he explains why he is asking for these data:

"At the convention in June it was decided to organize a traffic department. Traffic, to *some* wholesalers, means, *mainly*, reconsigning.

"The managing director has just returned from a meeting of the reconsigning committee of the National Industrial Traffic League in Chicago, where the principles of reconsigning were discussed with the railroad men of the nation. To lay the foundation for the traffic department and to assist in clarifying some matters which came up at the Chicago meeting, some information is desired. It is really necessary.

"This information is asked reluctantly because it seems to be burdensome upon the membership to supply data. That is, we had 600 members last fall when we sent out a questionnaire the returns on which were of vital importance to the membership. Out of 600 members, we got *only 76 reports*. . . .

"If you do not reconsign or if you do reconsign only coal in distress, at least that will tell us that the subject is not vital to you. That is something which we ought to know.

Wants Data to Make Reply to Railroads

"What it is desired to do is to have some concrete figures to answer some specific statements made by the railroad gentlemen. We want to know, first, how many cars of coal—all kinds—you handled in the first six months of this year. Then we want to know how many of those cars you reconsigned. If we have those two figures, it will be easy to calculate what percentage of the coal business of the wholesaler is handled on reconsignment.

"If you could go further, we would like—in the space marked for 'remarks'—to know how many of those cars were bought from other wholesalers or sold to other wholesalers and hence were subject to a second reconsignment. This other piece of information is not specifically requested, but it would be mighty valuable if we could get it. How many of the cars were bought on one railroad and consigned to another railroad; how many of the cars consigned to the second railroad would probably have to have a second change of destination before they could pass on to the ultimate consumer.

"After we have this information about the relation between the reconsigned coal and the total movement by your company—*whether the amount is very large or whether it amounts to practically nothing*—it is desirable that we have some further information which will help us to analyze the reconsigning situation. That is, the railroads say that a certain number of cars are ordered 'held for reconsigning' before they reach the first billed destination. How many of those cars are there?

"We want to know how many cars are reconsigned before they reach the first billed destination; how many are reconsigned after reaching the first billed destination and before the expiration of twenty-four hours; how many are reconsigned after the expiration of the free time; how many are reconsigned after placement—rejected coal, this means—and other important items.

"In order to make it easy for you to supply these data, a printed form is inserted in this bulletin. All it willl be necessary for anyone to do is to take this form out, turn it over to a clerk with instructions to fill in the report. Let's see if we can't get more than 76 answers to this appeal.

"The traffic meeting at Chicago was interesting but not highly important. Two years ago we joined the National Industrial Traffic League. Last spring your managing director was appointed a member of the committee on reconsigning and diversion. The league committee was called to meet in Chicago on Monday, July 11, and held a meeting with the traffic men on Tuesday, July 12. We were not then discussing any specific tariffs covering reconsigning coal and coal coke, fruits and vegetables, grain, lumber or any other specific tariffs. We were discussing only the general principles of reconsigning. Some minor concessions were granted, the most important one of which was:

Seek Right to Change Destination on Each Road

"If a car is 'held for reconsigning,' the charge for holding the car still has to be paid but the penalty charge does not begin to run for twenty-four hours after the notice of arrival has been given by the carrier. A matter of some importance is that the railroads now agree to notify the shipper where the car is held, when he requests that a car shall be held short of the first billed destination for reconsigning. We asked also that the rules be changed to allow a change of destination on each road. Our theory was—and is—that no railroad can file a reconsigning tariff for a connecting carrier and that the fact of one charge of destination on one road does not bar us from a change of destination on a connecting road. The railroads would not pass upon this question at once. It was put over for further consideration.

"We asked for a general reduction in reconsigning charges. Specifically we asked that the charges, which are now $3 and $7, should, uniformly, in future be no more than $2.50 and $6.50. We asked this without prejudice to our rights to ask later for a further reduction. The railroads took this under advisement also. We asked for a definition of what is a 'reshipment.' There was much discussion of this and it brought out the need for a general drafting of definitions which it was recognized would take considerable time and discussion. This also was deferred to a later meeting with the understanding that there should be a great deal of correspondence on the matter meanwhile. It is to get ready to draw these definitions and to answer the questions raised in this discussion that the information hereinbefore outlined is desired."

Bituminous Coal Loaded Into Vessels at Lake Erie Ports During Season to End of June*

(In Net Tons)

Ports	Railroads	1921 Cargo	1921 Fuel	1921 Total	1920 Cargo	1920 Fuel	1920 Total	1919 Cargo	1919 Fuel	1919 Total
Toledo	Hocking Valley	1,661,310	42,441	1,703,751	430,429	6,306	436,735	1,723,987	51,978	1,775,965
	Toledo & Ohio Central	452,256	12,487	464,743	273,447	18,074	291,521	473,666	13,179	486,845
	Baltimore & Ohio	930,561	26,178	956,739	166,456	7,924	174,380	752,545	16,503	769,048
Sandusky	Pennsylvania	505,505	14,594	520,099	205,543	3,791	209,334	534,094	15,655	549,749
Huron	Wheeling & Lake Erie	730,318	19,403	749,721	538,335	39,157	577,492	697,994	22,451	720,445
Lorain	Baltimore & Ohio	1,192,473	42,729	1,235,202	746,049	71,306	817,355	1,208,862	59,492	1,268,354
Cleveland	Pennsylvania	993,390	33,531	1,026,921	85,741	26,972	112,713	873,302	98,013	971,315
	Erie	236,821	7,460	244,281	.....	.....	.....	70,754	2,481	73,235
Fairport	Baltimore & Ohio	.....	.....	.....	.....	.....	.....	16,692	12,954	29,646
Ashtabula	New York Central	630,706	24,347	655,053	204,936	59,783	264,719	761,279	48,078	809,357
	Pennsylvania	1,238,816	38,013	1,276,829	180,162	30,208	210,370	764,811	30,170	794,981
Conneaut	Bessemer & Lake Erie	412,201	5,887	418,088	709,702	14,033	723,735	534,607	1,755	536,362
Erie	Pennsylvania—West	403,889	12,183	416,072	17,243	932	18,175	300,502	14,055	314,557
	Pennsylvania—East	72,730	9,459	82,189	8,807	26,096	34,903	99,767	4,876	104,643
Totals		9,460,976	288,712	9,749,688	3,566,850	304,582	3,871,432	8,812,862	391,640	9,204,502

* Compiled by Ore & Coal Exchange, Cleveland, Ohio; H. M. Griggs, Manager.

Mingo Operators Allege Union Conspiracy of Violence

Mines Now Running 96 Per Cent Normal—Twenty-Seven Men Killed Either for Working at Mines, Maintaining Law or Protecting Workmen—Keeney Alleged to Have Called Sixty-Three Strikes—Kirkpatrick Declares Operators Staged Sham Battle

IN the opening investigation of the disorders in the coal fields of Mingo County, West Virginia, before the Senate subcommittee of the Committee on Education and Labor, Chairman Kenyon asked if unionism was not the real issue in the dispute. Witnesses for the mine workers said that the mine owners are determined to keep the mines idle forever rather than submit to unionization. Fred Mooney, of the miners' union, denied that any part of the union's $2,400,000 relief fund had been spent in the purchase of arms and ammunition.

Neil Burkinshaw, attorney for the mine workers' union, said that the union demanded its rights to public assembly and union membership. Colonel Z. Tyler Vinson, of Huntington, presented the views of the mine owners. "We emphatically assert," he said, "that all the trouble, violence and murder that have occurred in Mingo and Pike counties for the past year have been directly caused by the activities and criminal practices of the United Mine Workers' organization, which for years past has pursued a policy that is criminal in its character, and under and in pursuance of such policy this organization is attempting by means criminal and unlawful to substitute for law and orderly government the policy and practices of that organization."

Mines Now Running 96 Per Cent Normal

The further assertion is made that there is "no industrial controversy and no strike involved between the mine owners and their employees, for the reason that the mines are being operated by men enough to produce all the coal that can be sold, and are actually producing 96 per cent of the normal output of the field, notwithstanding depressed market conditions. These men are working of their own free will and accord, and desire to continue to work, as will be fully proven before this committee.

The real question at issue, according to his statement, is "Shall men be forced to join the union, contrary to their wishes, before they are allowed to work in the mines? Shall the mine owners be denied the right to employ such men as desire to work for them, when such men are not members of this union? Shall the right of individual contract be preserved?

"The production of coal, if all miners are organized in one union," said Colonel Vinson, "is put at the mercy of the officers of that union, as illustrated in the strike of 1919, when the government and the people were forced to depend on this and the few other unorganized fields for fuel."

Use State Line to Avoid Authorities

Attention was called to the physical situation of the coal field in question, where the mines are located along a front of some fifty miles on Tug River, a narrow stream which divides West Virginia from Kentucky, some of the mines being in one state and some in the other, thus rendering law enforcement difficult. This field, it was declared, has been for years the refuge of miners who, not wishing to work under union rules and regulations, have come here to find employment.

Colonel Vinson also charged that in furtherance of the attempts to hinder the production of coal and destroy the business of the mine owners, the union advised its members "to retain possession of the company houses in which they live," and to refuse to "vacate them upon the termination of their employment," with the object of preventing the mine owners from furnishing "their necessary employees proper housing facilities."

It was pointed out that the houses owned by the mine owners are for housing their employees and not for the purpose of renting to tenants; that they are incident to the business of coal producing and that for non-workers to hold them is to defeat the purpose for which they are provided and to prevent the operation of the mines.

It was averred that of the hundreds of houses occupied by the miners who went on strike, only about a score were secured by the owners through evictions made without first obtaining judgment of a court of competent jurisdiction, and that these few evictions were made "without any remonstrance or resistance on the part of those evicted, and without any breach of the peace."

A short résumé was given of the cases of "murder, arson, dynamiting and shooting from ambush into defenseless mining camps occupied by women and children, and at passers-by on public highways and at officers of the law, including United States troops in uniform, West Virginia State police and members of the Kentucky militia, as well as workers at the mines. All but five of the victims of all these acts were men either endeavoring to work or officials seeking to protect them in their right to work, and but five of them were at the time members of the United Mine Workers of America." The five persons members of the United Mine Workers of America were killed while engaged in murderous assaults upon others.

He averred that the United Mine Workers of America are responsible "for the death of twenty-seven persons in Mingo County. Many of these deaths were cold-blooded murder, the victims in several instances being shot in the back by men concealed in the woods or hiding in ambush." Two of the victims were important witnesses in the trial of men for murders for which the organization was responsible. Three were state police, "all of whom were shot in the back by means of this organization." One was a Kentucky militiaman. Ten of the deaths were in what is known as the Matewan battle.

Burn and Blast Buildings, Attack Workers

Charges were made by Colonel Vinson of the use of explosives and of incendiary fires in a dozen or so instances in which tipples, headhouses, bridges and other property at the coal mines was destroyed. The union was charged also with responsibility for scores of "vicious and cowardly assaults committed by members of the organization upon workers, the sole reason for these assaults being to intimidate, terrorize and punish men for working and not obeying the commands of that organization."

It was charged that the mine workers are responsible for "firing at and into troops of the United States in uniform in at least five separate instances," and that the mine workers are responsible also for insulting, intimidating and annoying people in no wise connected with this controversy, "whose sole offense consisted in being found on the highways and trains in this field, and in being suspected by the miners' organization of desiring to work at the mines, or of being in sympathy with those working."

Fred Mooney, a mine-union official, and Frank Ingram, a miner, gave details of disturbances which had occurred. Appearing as counsel for the operators in the hearing were Captain S. B. Lewis, of Charleston; C. L. Greever, of Tazewell; Harry Scheer, Judge Damron, and Randolph Bias, of Williamson.

Harry Olmsted, of the labor committee of the Williamson Coal Operators Association, described on July 18 the difficulties of mine operation since July, 1920, when the strike began.

When Sid Hatfield, chief of police of Matewan, against whom six charges of homicide are now pending, testified as to the Matewan gun fight with Baldwin-Felts detectives in the coal fields, his counsel, who also is counsel for the miners, waived immunity. Hatfield said he sought to serve the warrants of the Mayor of Matewan on the detectives, the

purpose being to stop the eviction of the mine workers' families. He said that seven of the thirteen in the detective party were killed in the pitched battle which ensued. Hatfield said he had asked the Mayor to issue the warrants, as the detectives were violating the town ordinances by carrying weapons.

Hatfield Sells Guns in Mingo County

S. B. Avis, of the operators' counsel, asked Hatfield if he had been instrumental in bringing rifles into Mingo, and Hatfield said he was operating a store which sold guns, although he did not pose as a gunman. He said the cost of his legal defense from the homicide charges was being defrayed by the mine workers' union.

C. F. Keeney, mine union president in the district of which Mingo is a part, denied, as had Fred Mooney before him, that any of the two and a half million dollars spent by the miners' union in connection with the strike was used for procuring arms, the money being expended in the support of the tent colonies in which 11,000 miners and their families lived.

Counsel Avis, for the operators, brought out the fact that even when operators consented to deal with the mine workers' union that organization habitually broke its contracts. He said that sixty-three strikes had been called by Keeney in one field alone; Keeney declared, however, that "Your figure probably is too high," and insisted that many of the strikes were bred by the secret-service men of the operators, who were employed in the mines. Counsel pointed out that the mine guards and volunteer state police were high-class citizens, such as dentists, doctors, bank officials and merchants, and that most of them had been ex-service men, but Keeney said they were gunmen and some thugs.

Senator Sterling, of South Dakota, asked if the union men did not use violence, intimidation and threats to force nonunion men into the union and Keeney denied the insinuation, saying that it was not the policy of the mine workers.

James Kilpatrick, a deputy sheriff, said he had received a salary from the union as well as his official pay and named half a dozen men he said the coal operators employed. He said, however, that the system was no longer in effect.

Keeney Wants Miner to Get Excess Profit

In reply to questions from Chairman Kenyon, Mr. Keeney said a miner should receive all the wealth he creates after paying the running expenses, transportation and a fair return to the men who own the property. He said this did not mean taking the property away. He said the union is endeavoring to get that method of compensation adopted rather than the present system.

Albert Kirkpatrick, of Portsmouth, Ohio, charged that a sham battle was staged by the coal operators in order to force the declaration of martial law. As a mine foreman for the Burnwell Coal Co., at Chattaroy and Sprigg, W. Va., he had plotted with mine officials to stage the sham battle so that martial law could be declared. While he was working at the mouth of the mine Kirkpatrick said other men went across the mountains and fired at him. There were no casualties but the plot was successful and troops arrived in thirty minutes. Counsel for the operators endeavored to disprove his story but Kirkpatrick said it was true. He said he told it because he had been treated "dirty" by Jake Henry, the superintendent of the company.

Made Miners Buy Goods at Company Store

W. E. Hutchinson, a coal miner, said that miners who refused to trade at mine stores were discriminated against and given "scrubby" jobs in the mines. He said the prices charged at the mine stores were higher than others and were advanced when the miners received a wage increase last November.

Hutchinson was one of the leaders of the movement to unionize the mines in Mingo County and gave a history of the union movement there. The organization of the men was accomplished in secret among employees of the Burnwell company. When the company learned of the men joining the union they were discharged and refused further use of the houses provided by the company. He quoted President Pritchard of the Burnwell company as saying he would never permit the unionization of his mine. Hutchinson testified that his furniture was removed by armed detectives and is now "rotting against the company store."

Mingo's Martial Law Recognized in Court

COUNSEL for the United Mine Workers of America made an ineffectual effort at Charleston, W. Va., to obtain the release of their mine leaders through writs of habeas corpus, attacking at the same time the legality of the Governor's proclamation of martial law, under which David Robb and eight others had been taken into custody.

The Supreme Court of West Virginia refused the application for writs of habeas corpus and the union men were remanded without bail to the custody of the military authorities. When the Supreme Court handed down its decisions attorneys for the petitioners gave notice of their intention to appeal to the Supreme Court of the United States. The court in its opinion held, by inference at least, that the newly-organized militia in Mingo County constituted a military force.

Confronted with the alternative of going back to the jail at Welch or of leaving the state permanently under deportation orders, four of those who had been arrested chose the latter, and an agreement was reached between Major Thomas B. Davis, acting as the personal representative of Governor Morgan and as head of the military forces in Mingo County, and Angus W. Kerr, of Chicago, of counsel for the United Mine Workers, that Robb and others of his colleagues who were not residents of the state should depart as soon as they were able to turn over the administration of the union relief stations in Mingo County to resident union men. Those ordered to leave the state and who agreed to do so were David Robb, international financial agent; John Brown and Robert Gilmore, members of the international board of organizers, all of whom were given until Monday night, July 18, to make their preparations to leave. The fourth man ordered to leave the state will be either Herbert Halls or Jasper Metzer, as Major Davis may determine. Whether it be Halls or Metzer, however, he will be given an additional week to perfect his arrangements.

West Virginia Mine Fatalities Increased In May, Despite Reduced Operation

DESPITE constant warnings on the part of the Department of Mines to observe greater care, the death rate in West Virginia mines during the month of May, 1921, was much higher than for the preceding month, although operations were reduced in every part of the state. There were thirty-six fatal accidents in May and all but six were the result of mishaps inside the mines. Eighteen mine workers were killed in the most common form of accident inside the mines—falling roof, timbering, coal and slate. Mine-car accidents were more frequent than usual, there being nine deaths from that cause. McDowell County led all others in the number of accidents, there being eleven in that county alone. Six fatal accidents were charged against Logan County and five against Raleigh. In the mines of Fayette County three were killed and in the mines of Wyoming County two were killed. In the counties of Kanawha, Clay, Mercer, Ohio, Monongalia, Marion and Brooke there was one fatal accident each. Most of the casualties were in the southern part of the state. Among those killed during the month was Robert Smith, assistant superintendent of the Panther Coal Co., who came in contact with a live wire, 33,000 volts passing through his body.

PRESIDENT HARDING purposes doing everything possible to arrange his affairs so as to permit his attendance at the International First-Aid and Mine Rescue contest to be held at St. Louis, Sept. 1 to 3. The President is not in a position to make a definite promise at this time but has expressed keen interest in the invitation extended him by H. Foster Bain, Director of the U. S. Bureau of Mines.

Central Penna. Operators Meet to Formulate Policy with Mine Workers; Business Goes to Non-Union Fields

THE Central Coal Association, made up of coal operators in the Central Pennsylvania Bituminous coal field, held a meeting in the rooms of the Central Pennsylvania Coal Producers' Association on Wednesday afternoon, July 20. Following the meeting, which was held behind closed doors, the following statement was given out:

"At a meeting of the Central Coal Association held in Altoona today and attended by about one hundred coal operators, there was several hours' discussion on an important resolution affecting their future policy with the United Mine Workers of America. At the conclusion of the discussion, owing to the fact that a number of the operators desired to consult with their Board of Directors before pledging themselves to support the resolution, the meeting was adjourned to meet in the Lincoln Trust Building, Altoona, Thursday, July 28, at which time final action will be taken.

"The reports indicated that central Pennsylvania had lost during the month of June of their normal share of the business of the country, based upon the average they have maintained for the last five years, 3,000 carloads, or 150,000 tons. This business has gone to districts outside of central Pennsylvania that have made the wage adjustment. In addition, it was disclosed by a survey of the union and non-union mines operating within the district, that a shift in the business had occurred whereby the non-union mines operating in the district had taken 7,000 carloads more than their normal average of the business during the month of June, or 350,000 tons that the union operators lost, the total loss of the union operators for the month of June of their share of the business of the country being 500,000 tons.

"In Somerset County the operators producing about 6,000,000 tons reduced their wages to the 1917 scale, effective Saturday, July 16. This additional tonnage on the adjusted basis will be in competition with central Pennsylvania union mines henceforth, and the conditions in central Pennsylvania union mines will steadily grow worse and the result in July will be much worse than the result in June."

Colorado Coal Output Recedes 20 Per Cent

PRODUCTION of coal in Colorado during May fell off 25 per cent from the rate of Jan. 1 according to a report by James Dalrymple, state coal mine inspector. During the first five months of the current year only 3,743,966 tons were mined, as compared with 5,028,501 tons during the same period last year, a decrease of 1,284,535 tons.

Of the nineteen coal-producing counties of the state only three show an increase in production over 1920. These are Weld, Jefferson and Pitkin. Las Animas and Huerfano, the chief coal counties of the state, show, between them, a loss of more than 850,000 tons over last year.

Lack of orders is reflected by that part of the report dealing with employment in the mines, which shows that out of 151 possible days the miners, on an average, worked only 66.7 days, or about four days out of every ten. During May only 12,445 men were employed in and about the mines, as compared with an average of 13,920 during the entire first five months of the year.

Coal production during May by counties, total production since Jan. 1, and the increases and decreases are as follows:

Counties	May Production	Total Tonnage	Increase	Decrease
Boulder	48,043	384,699	.....	129,772
Delta	5,477	34,799	.....	12,980
El Paso	15,677	133,257	.....	22,637
Fremont	56,058	255,813	.....	111,099
Garfield	1,065	5,935	.....	3,960
Gunnison	35,468	182,649	.....	48,440
Huerfano	150,834	659,865	.....	382,335
Jackson	2,500	15,545	2,256	.....
Jefferson	7,719	52,530	.....	15,468
La Plata	5,122	38,742	.....	15,793
Las Animas	224,838	1,264,758	.....	478,938
Mesa	4,097	34,063	.....	35,049
Moffat	38	571	.....	1,085
Montezuma	90	1,192	204	.....
Montrose	233	597	.....	7
Pitkin	81	364	364	.....
Rio Blanco	160	1,888	.....	452
Routt	79,848	278,952	.....	77,689
Weld	36,550	397,747	38,351	.....
Totals	673,898	3,743,966	.....	.....

Union Man Becomes Official Conciliator

EDWARD STEWART, former president of district No. 11, United Mine Workers of America, Terre Haute, Ind., has been appointed a national labor conciliator by Secretary of Labor Davis, according to announcement received at Indianapolis recently. For the present time Mr. Stewart will work out of Terre Haute as headquarters, but will be subject to call to any part of the country. The duties of the office will be to influence the settlement of labor disputes by acting in an advisory capacity.

Mr. Stewart served as district president of the mine workers' union, with headquarters in Terre Haute, for three terms, or six years, being always known as a "conservative" leader. This year he was defeated when he appeared for re-election for the fourth term. He won a large percentage of the joint-appeal cases that came before the tribunal in which he and the operators' association were the adjusting judges, and in a number of arbitration cases in the district where disinterested persons were to make decisions he did not lose a single case.

Pennsylvania's Anthracite Output in 1920 79,364,000 Tons; Value, $436,488,000

SECRETARY WOODWARD, of the Pennsylvania Department of Internal Affairs, has made public figures with respect to the production of anthracite in 1920 as ascertained by the state. The following statistics are taken from his report:

	1919	1920
Gross tons produced	79,512,200	79,364,000
Value of output	$364,801,000	$436,488,000
Number of plants reporting	178	187
Total employees	151,812	144,551
American employees	67,264	67,632
Foreign employees	84,548	76,919
Wages paid	$209,452,900	$237,302,900

A table showing the number of employees engaged in anthracite mining in 1920, the amount of wages paid, the tonnage and value by counties follows:

Counties	Total No. Employees	Total Wages	Tonnage Produced	Value of Production
Carbon	5,314	$9,057,700	3,051,700	$15,651,100
Columbia	1,266	1,993,800	987,100	4,471,500
Dauphin	1,679	2,715,100	807,900	4,292,000
Lackawanna	32,620	53,774,200	16,853,400	97,764,600
Luzerne	54,659	90,431,600	31,198,100	178,231,400
Northumberland	12,640	20,480,700	6,303,900	32,514,600
Schuylkill	33,963	54,884,800	18,688,300	94,477,900
Sullivan	736	1,058,200	464,800	2,494,200
Susquehanna	913	1,475,400	440,100	3,175,100
Wayne	761	1,431,400	569,300	3,415,600

Strike for Equal Share of Available Work

MINERS at a coal mine three miles east of Petersburg, Ind., operated by the Gladstone Coal Co., recently quit work as a protest against the company giving certain men more opportunity to work than others. No trouble accompanied the walkout. Efforts will be made to settle the differences. The big Atlas mine, owned by the Pike County Coal Co., just east of Petersburg, which shut down because of a misunderstanding about syndicate work, is still idle. Many miners are leaving Petersburg.

A MINE RESCUE STATION at Terre Haute, Ind., is provided in a bill which has been introduced by Representative Sanders of Indiana.

May Form Federal Board to Settle Mine Disputes as Result of Mingo Probe

A FEDERAL board to adjust coal-mine labor disputes may be recommended by the Senate sub-committee on education and labor which has concluded the taking of testimony in Washington on the strike in Mingo County (W. Va.) coal fields. At the close of the ten-day hearing when representatives of the operators and miners were heard Chairman Kenyon of the investigating committee indicated that such a recommendation would be made to the Senate.

A summary of the testimony introduced shows that the strike was the outcome of a bitter struggle against union domination of the mines by organized labor, the operators refusing to yield to the union because it would mean the entering wedge for union control of the coal industry. Charges that operators in other coal fields had conspired with the miners to check production in the Mingo field did not materially impress the committee. Senator Shortridge, of California, said strong evidence would have to be presented to convince him on that point. The committee will not make its report to the Senate until it analyzes the testimony already taken and determines whether to continue the hearings in the strike-affected region or to close up the case at this time.

Ohio Utilities Commission to Hold Hearing On Reasonableness of Freight Rates

THE Ohio Utilities Commission has set Aug. 2 for a hearing at Columbus on the question of the reasonableness of all freight rates in the State of Ohio. The action was taken as a result of a widespread agitation against high freight rates, especially on heavier commodities such as coal. It is announced that the first part of the hearing will be devoted to rates on road-building materials and later to rates on all heavy commodities.

The action of the Ohio Utilities Commission has no bearing on the hearing scheduled for Sept. 12 before an examiner of the Interstate Commerce Commission at Columbus on the question of the differential on coal freight rates from Ohio fields as compared with the inner and the outer crescent fields of West Virginia. It is expected that the two hearings will run largely along the same lines, however. The Southern Ohio Coal Exchange is backing the hearing before the Interstate Commerce Commission.

Henry Ford, who some time ago purchased the Detroit, Toledo & Ironton R.R., announced a flat reduction of 20 per cent in freight rates, asserting that the time had come for such reduction. While this is not a "coal road," the announcement threw a bombshell in the camp of traffic managers of various railroads.

A suit attacking coal-freight rates for 30-mile and shorter hauls in Ohio has been filed with the Ohio Utilities Commission by the New York Coal Co. against the Hocking Valley Railway Co. While the suit has been filed by an individual concern against an individual railroad, the complaint is of such a general nature that its determination will have a general application in the Buckeye State. Increases of as high as 425 per cent over the rates of 1917 are charged in the bill of complaint. The complaint avers that for both local and remote hauls the rates are excessive, unreasonable and unlawfully discriminatory and in excess of rates charged on Eastern railroads.

It is asserted that the whole freight-rate system was thrown out of joint when the Interstate Commerce Commission authorized an increase of 15c. on all rates in 1917. Since that time an increase of 25 per cent and one of 40 per cent have been authorized. An instance is given where a rate of 25c. for a two-mile haul in 1917 was increased to 40c. and then by the two other increases to 84c.

E. E. Clark Resigns from Commerce Commission; F. I. Cox Appointed

EDGAR E. CLARK, chairman of the Interstate Commerce Commission, has resigned from that body. It was announced at the White House that Chairman Clark feels he must forsake the government service in order to recoup his private fortunes. He is to enter business. Frederick I. Cox, of New Jersey, was named July 22 to fill the vacancy caused by Mr. Clark's resignation.

Mr. Clark entered the railway service in 1873 and in 1889 became Grand Senior Conductor of the Railway Conductors of America, serving as Grand Chief Conductor from 1890 to 1906. President Roosevelt appointed him to the Anthracite Strike Commission in October, 1902, and on Aug. 28, 1906, he joined the Interstate Commerce Commission.

Charleston Section, A. I. M. E., Will Hold Organization Session

A MEETING of a committee appointed to arrange for the formation of the Charleston Section of the American Institute of Mining and Metallurgical Engineers was held at the office of Carl Scholz, chairman, Professional Building, Charleston, W. Va., Saturday, July 23, 1921, at 2 p.m., at which the following members of the institute were present: Carl Scholz, J. S. Cunningham, E. M. Merrill, O. Cartlidge and J. M. Clark, resident members, and Thomas H. Claggett, a member from Bluefield, W. Va.

At that meeting the committee decided to hold a meeting for the organization of the Charleston section, on Tuesday, Sept. 6, 1921, at which time officers for the balance of the current year will be elected and bylaws adopted. A banquet is to be served at the close of the session.

Tidewater Coal Exchange, Inc., Makes Changes in Pooling Rules

AT A MEETING of the members of the Tidewater Coal Exchange, Inc., held in New York July 21 several changes in the rules were adopted. Rule 1 was revised to provide for an initiation fee of $300 for shippers who join on or after Sept. 1. Payment of this fee will be waived in the case of those joining previous to that date. Another change in this rule gives the exchange broader control over members' credit and makes possible the covering of any losses to the exchange.

Rule 6 was recast and now provides substantially that all bituminous coal for transshipment at tidewater ports shall be graded and classified in designated pools by a classification committee appointed by and under the direction of the Executive Committee. Limits and tolerances for each pool will be established and published to members at such times as the Executive Committee shall designate. This change will be effective Aug. 1.

Rule 18, relating to the method of allocating demurrage charges, was modified so that in the future detention will be figured on the same basis as the railroads render bills, allowing the benefit of the exchange on free time, but charging members their exact detention. The change will become effective Aug. 1.

AS A PART OF A GENERAL PLAN the National Coal Association is giving increased attention to an effort to convey to the public more information on the whole question of coal. The association is anxious that other businesses understand some of the problems of coal production and at the same time is desirous of acquiring a better understanding of the problems of other businesses. In furthering that plan, J. D. A. Morrow, vice-president of the association, has gone to Evansville to address the Rotary Club of that city. In this same endeavor T. W. Guthrie recently addressed the Chamber of Commerce, Pittsburgh; T. T. Brewster spoke in St. Louis and T. W. Watkins has made a number of addresses at Pennsylvania points.

Despite Widespread Use of Coke and Cordwood for Fuel, Sweden Is a Promising Market for American Coal

By Dr. Henry M. Payne*

THE coal situation in Sweden is of interest to American coal exporters not only because of the opportunities for supplying American coal but because the efforts made there to burn coke and to utilize cordwood as fuel on a large scale, and extensive hydro-electric developments have clearly defined the cost conditions to be met. According to a recent report of Trade Commissioner Klath to the Bureau of Foreign and Domestic Commerce, the average annual imports of coal into Sweden before the war were about 5,000,000 tons, of which 300,000 tons were consumed in the manufacture of illuminating gas.

Up to 1920 Great Britain controlled the Swedish market. Subsequent to that time, due to the English strike and its corresponding increase in cost, together with uncertain deliveries, English coal has become less and less a factor, 1,250,000 tons of coal and coke having been imported from the United States during the past year. At the present time only light shipments are going to Sweden from the United States, due to the slowing down of industry there and the large stocks still on hand.

The Swedish market is not dependent wholly on coal, due to the vast forests in the northeastern part of the country. During the war when coal prices were as high as 250 kroner per ton, many of the large industries used cordwood exclusively. In certain sections today firewood is cheaper than coal, and some of the lesser lines of the State Railways burn wood or combine coal with peat. Sweden also is rapidly developing her water-power resources and constructing huge hydro-electric plants and electrifying her railways. To lessen the cost of gas, and to increase the coke output, Pocahontas and New River coals are mixed.

The Oxelösund Jarnerksaktb was established at Oxelösund in 1913, with a capital of $2,750,000 to make coke, having an annual capacity of 125,000 tons. The restriction of the iron and steel industry, however, caused a heavy deficit in 1920.

Large Lump Used for Both Gas and Steam Purposes

The trade has been accustomed to large lump coal for both gas and steam purposes. Much complaint is heard about American coal breaking up in handling, and even screened coal, for which premium prices were paid, has contained much slack on arrival. To meet this condition, stoker grates are being introduced and in some cases crushers are being installed.

During the war English export regulations required a certain percentage of fines to be taken with screened coal, which, coupled with the increased use of American slack, would indicate a steady market for this grade of coal. There seems to be little preference expressed as between high- or low-volatile coal for steam purposes. Smoke consumers are practically unknown, and smoke ordinances are rare.

The English coal formerly used for gas purposes ran about 1.5 per cent sulphur. The general equipment of purifying boxes is ample, and there are no legal restrictions on the amount of H_2S which may exist in the gas furnished by public utilities. All types of retorts are used, the horizontal retorts being hand-fired while the vertical and inclined retorts usually are charged mechanically. The expected yield of gas is from 5 to 5½ cu.ft. per pound of coal.

The manufacture and sale of all the usual byproducts is prosecuted vigorously, with special reference to high-grade coke, which is not only used in the steel industry but also for domestic heating. About 100,000 tons of coke are imported annually. On account of this great demand for coke, nothing but a good coking coal is acceptable.

Scientific studies also are being made into the effects of the fusing point of ash, and in the near future, if indeed not at present, it will be essential for the American exporter to know the definite characteristics of the particular coal he proposes to ship to Sweden to obtain orders.

The State railways and a few of the larger industrials charter their own ships and buy their coal direct. The smaller consumers buy through the various Swedish importing houses. During the war Great Britain required cash against documents on all Swedish coal cargoes. Before that time ninety days' credit was allowed, with a discount for cash.

One of the criticisms repeatedly made of American coal exporters is their unwillingness to supply less than cargo lots. English shipments of 400-500 tons are the rule rather than the exception. Under the present fluctuating prices for coal, a falling market with a large cargo en route may mean serious loss. On account of ice which closes many of the harbors from the middle of December to the beginning of May, the bulk of coal is imported during the summer months. Storage facilities are excellent. Port terminal equipment is ample for prompt discharge and little demurrage difficulty is encountered. A recent shipping bulletin gives the following port capacities for Swedish and Danish ports: Malmo, 1,000 tons per day; Copenhagen, 1,000 tons per day; Stockholm, 800 tons per day; Gothenburg, 1,000 tons per day.

Complementary Details in Successful Coal Trade

Coal trade with England was built up on the basis of return cargoes, advantageous freight rates, less-than-cargo-lot shipments to individual consignees, and 90-day credits with discount for cash. The United States was never a normal source of supply for Swedish coal until war emergencies and English mine strikes made necessary the development of a new source.

One of the most plentiful return cargoes is timber and pulpwood. Iron ore also is available but not in demand here. American cargo ships, therefore, usually obtain cargoes of timber from the Gulf of Bothnia, Finland or the Baltic States for transportation to England or the Continent, and there take on other cargo for the United States, making a triangular voyage.

The freight rates on coal from, and wood to, England are governed by supply and demand. With no coal from England and a decreased amount of mine timber being used there, an entire readjustment of cargoes and rates is inevitable. The future of the Swedish market for American coal depends upon (a) the future cost of English coal, (b) American willingness to comply with the desires and special requirements of Swedish customers, (c) credit terms as favorable as those of competitors—usually ninety days from date of sailing, with discount for cash.

There appears no logical reason why any responsible source of supply in America should not, with these facts in mind, send his direct representative to Swedish purchasers of coal and enter into negotiations for shipments of American coal of recognized quality, with Tidewater Coal Exchange certificate of inspection and loading, and in this way build up a permanent market for his product.

How It Looks to Some.—The frantic effort of coal barons to prevent the publication of profit statistics indicates that they are still making expenses.—*Providence Journal.*

COAL AGE INDEX

The indexes to "Coal Age" are furnished free to all who ask for them. The index for the first half of 1921 will soon be ready for distribution, and a copy can be had by addressing a postcard to the subscription department of "Coal Age."

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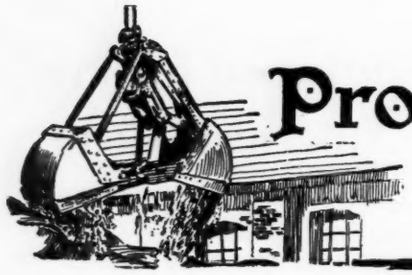
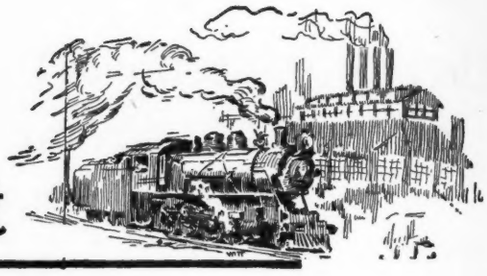


Production and the Market



Weekly Review

PRODUCTION of bituminous coal, as forecast in this review two weeks ago, continued to decline throughout the first half of July and promises to drop still further. Output in the week ended July 16 was 7,359,000 net tons, compared with 7,658,000 in the last full-time week, that of July 2. The decrease in two weeks has been 4 per cent. This condition is attributable to the drop in Lake and Tidewater movements and is not indicative of further decrease in either general industrial or domestic coal demand.

Soft Coal More Active Than Most Industries

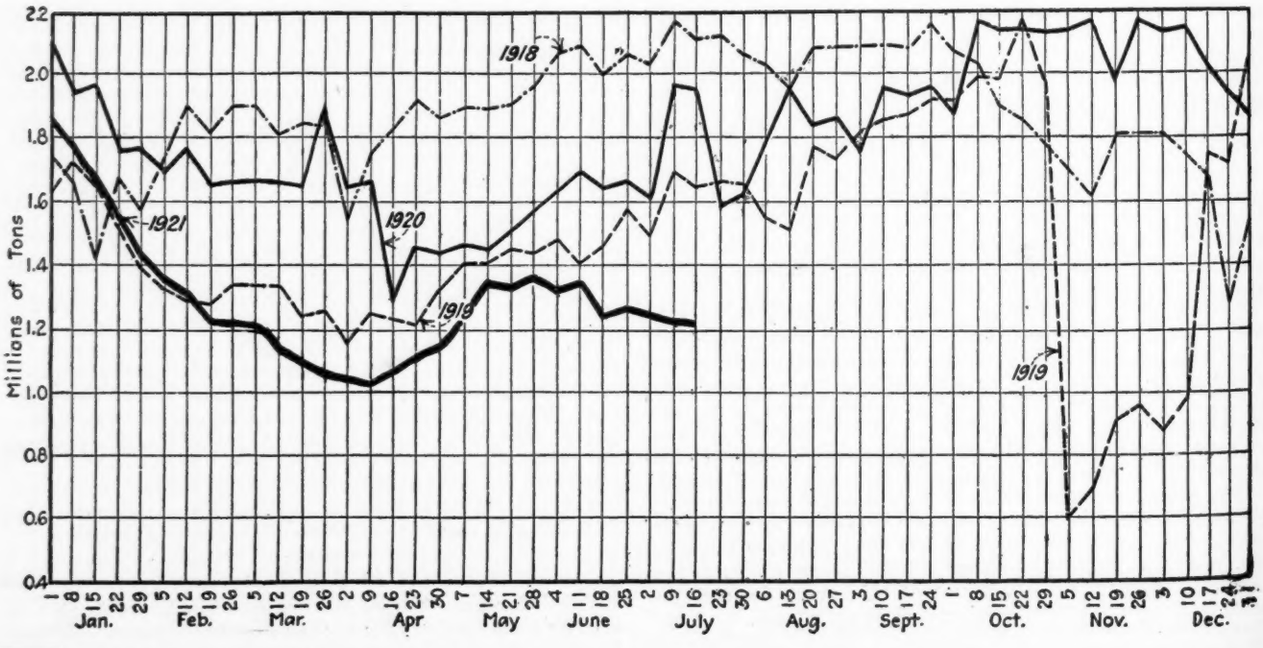
The full effect of the summer dullness has not been felt and although it is a gloomy view, if it be considered by itself, the prospect is for the rate of production to shrink still further before it starts up. Our Boston correspondent notes that even in the deadest of dead summers before the war more coal was sold than now. Other sections show conditions to be equally dull. But, despite this outstanding lethargy, the soft-coal industry is going at better than 40 per cent of full-time operation, and even though it drop to 7,000,000 tons a week it will be doing nearly 60 per cent of its top-notch record. Not many industries can boast of such a record in these days.

Prices continue largely nominal, representing rock-bottom levels at the present rate of demand. The level, as indicated by *Coal Age* index of spot prices, which has now stood at 89 for two consecutive weeks, is fixed at an almost irreducible minimum by production costs. Of course, the cost of production is not the determining factor in prices, and the average cost is a poorer measure, but it is certain that, just as one high-cost mine after another has closed and the level of prices has followed down with the cost of operation of those properties still going, so will prices inevitably mount when demand is such as to call forth more tonnage than the mines now at work can furnish. For any given field there is a definite relation between output and price, and even in such uncertain times as these this relationship still exists. In other words, if demand should drop to 6,000,000 tons the price will fall still more, but when demand is for eight, nine or ten million tons, as it most certainly will be before snow comes, prices will surely go up.

Good Omens Seen Outside Coal Trade

One turns outside the coal trade to find omens of better times. The financial markets are reported as continually more optimistic—not in the way of whistling to keep up courage, but in a sound, reasoned, way. Steel looks better—the bottom on orders is said

Daily Average Production of Bituminous Coal*



*From weekly report of Geological Survey.

to be at hand. The railroads will soon have some money. Textiles are moving. The improvement in business, when it comes, will slide in unannounced, and be on the country unawares. The signs are accumulating, but when the pick-up will gain sufficient headway to raise steam coal from the slough of despond, one cannot say.

BITUMINOUS

Production from Jan. 1 to July 16 this year has been 211,928,000 tons, compared with 235,021,000 tons in the same period of 1919 and 278,721,000 tons in 1920. In other words, business has failed by 23,000,000 tons of demanding the coal it took in 1919 during the worst of the post armistice slump and by 67,000,000 tons the total bought last year.

Even with coal production at its present low level, the margin of available cars is not great. If the plan looking to the placing of road contracts in the fall, instead of in the spring, should go through and there should be even a moderate revival of business this fall the point soon would be reached where all the idle open-top cars would be in use.

In addition to 372,050 surplus cars, of which 173,617 were coal cars, reports just published by the Car Service Division of the American Railway Association show that on July 1 there were also 354,611 freight cars out of repair, or 15.4 per cent of the cars on line, an increase from 346,861 on June 15. Another disquieting feature of the situation is that 25 per cent of the locomotives of the country are in bad order.

Lake business is falling off. Loadings at the mines are very much less now than three or four weeks ago and dumpings at lower Lake Erie ports have declined from the high point of around 1,200,000 tons per week the first of July to little more than 700,000 tons three weeks later. The total Lake coal dumped up to July 25 was 12,627,000 tons, approximately the same as in 1919 but more than twice that of last year. Shippers are freely predicting that after Aug. 1, when the 28c. per ton seasonal freight reduction is applied to points other than those now affected (Superior and Michigan north of the Illinois-Wisconsin state line), there will be a belated revival in the Lake cargo business. Preliminary figures for the week of July 25 show 695,285 tons of cargo coal dumped and 24,429 tons of vessel fuel, a total of 719,714 tons, the lowest since the second week of May.

Increase in Exports Due to British Strike

Exports of bituminous coal in June were 3,710,000 net tons (3,314,513 gross tons), compared with 3,510,000 net tons (3,132,253 gross tons) in June, 1920. There were substantial decreases compared with June, 1920, in exports to Cuba, Argentina, and Chile on this side, and to France, Italy, Netherlands, Sweden and Switzerland on the other side. The increase came in shipments to the United King-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

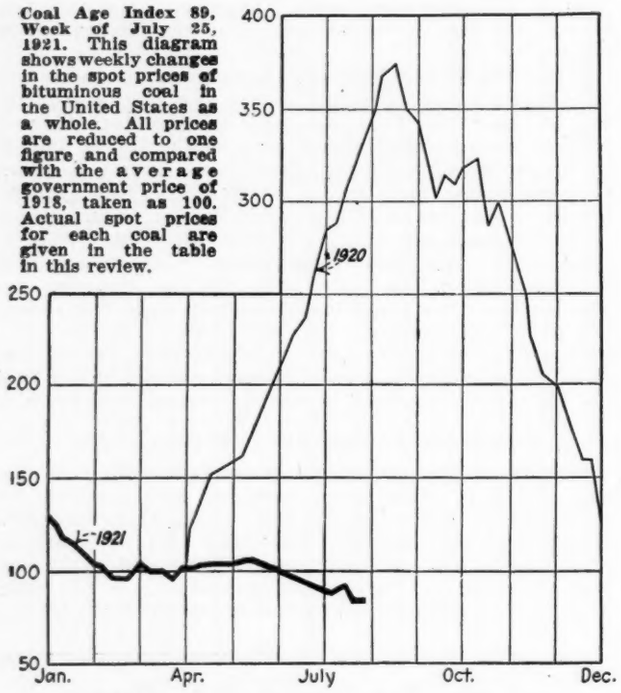
	Market Quoted	June 21, 1921	July 12, 1921	July 19, 1921	July 26†, 1921
Low-Volatile, Eastern					
Pocahontas lump	Columbus	$5.50	$5.75	$5.65	*$5.25@$5.50*
Pocahontas mine run	Columbus	3.40	3.25	3.15	3.00@ 3.25
Pocahontas screenings	Columbus	2.40	2.15	2.30	2.15@ 2.40
Pocahontas lump	Chicago	5.65	5.00	5.00	**4.75@ 5.50**
Pocahontas mine run	Chicago	3.15	2.65	2.75	**3.00@ 3.25**
*Smokeless mine run	Boston	6.15	5.90	5.85	*5.60@ 5.75*
Clearfield mine run	Boston	2.25	2.05	2.00	*1.70@ 2.15*
Cambria mine run	Boston	2.85	2.70	2.70	2.35@ 3.00
Somerset mine run	Boston	2.10	1.90	1.80	*1.50@ 2.00*
Pool 1 (Navy Standard)	New York	3.45	3.10	2.90	**3.00@ 3.25**
Pool 1 (Navy Standard)	Philadelphia	3.25	2.80	2.80	2.75@ 2.85
Pool 1 (Navy Standard)	Baltimore	2.95	2.60	2.60	*2.40@ 2.50*
Pool 9 (Super. Low Vol.)	New York	2.85	2.55	2.50	2.35@ 2.60
Pool 9 (Super. Low Vol.)	Philadelphia	2.85	2.40	2.40	2.30@ 2.50
Pool 9 (Super. Low Vol.)	Baltimore	2.70	2.40	2.35	*2.15@ 2.25*
Pool 10 (H. Gr. Low Vol.)	New York	2.50	2.25	2.20	2.10@ 2.35
Pool 10 (H. Gr. Low Vol.)	Philadelphia	2.45	2.20	2.20	2.00@ 2.35
Pool 10 (H. Gr. Low Vol.)	Baltimore	2.35	2.15	2.00	2.00
Pool 11 (Low Vol.)	New York	2.35	1.95	2.00	*1.80@ 2.00*
Pool 11 (Low Vol.)	Philadelphia	2.10	1.90	1.90	1.75@ 2.00
Pool 11 (Low Vol.)	Baltimore	2.10	1.85	1.75	1.70@ 1.80
High-Volatile, Eastern					
Pool 54-64 (Gas and Steam)	New York	2.00	1.95	1.70	1.70
Pool 54-64 (Gas and Steam)	Philadelphia	1.85	1.75	1.75	1.75
Pool 54-64 (Gas and Steam)	Baltimore	1.75	1.65	1.50	1.35@ 1.60
Pittsburgh sc'd. gas	Pittsburgh	2.50	2.95	2.95	2.85@ 3.00
Pittsburgh mine run (steam)	Pittsburgh	1.85	2.10	2.10	2.00@ 2.15
Pittsburgh slack (gas)	Pittsburgh	1.60	1.45	1.45	1.40@ 1.50
Kanawha lump	Columbus	3.45	3.25	3.30	*3.00@ 3.25*
Kanawha mine run	Columbus	2.15	2.15	2.00	**2.00@ 2.25**
Kanawha screenings	Columbus	1.20	1.15	1.20	1.10@ 1.30
Hocking lump	Columbus	3.15	3.25	3.25	*3.00@ 3.25*
Hocking mine run	Columbus	2.15	2.15	2.15	2.00@ 2.25
Hocking screenings	Columbus	1.20	1.20	1.25	**1.20@ 1.35**
Pitts. No. 8 lump	Cleveland	3.25	3.25	3.25	3.00@ 3.50
Pitts. No. 8 mine run	Cleveland	$2.10	$2.25	$2.20	$2.15@$2.25
Pitts. No. 8 screenings	Cleveland	1.25	1.25	1.25	**1.25@ 1.40**
Midwest					
Franklin, Ill. lump	Chicago	3.65	3.55	3.55	3.00@ 4.05
Franklin, Ill. mine run	Chicago	2.90	3.15	3.00	**2.70@ 3.55**
Franklin, Ill. screenings	Chicago	1.95	1.90	1.95	*1.75@ 2.00*
Central, Ill. lump	Chicago	2.65	2.65	2.50	2.00@ 3.00
Central Ill. mine run	Chicago	2.40	2.40	2.40	*2.00@ 2.50*
Central Ill. screenings	Chicago	1.65	1.65	1.75	*1.40@ 1.75*
Ind. 4th Vein lump	Chicago	2.90	2.90	2.80	**3.50@ 3.65**
Ind. 4th Vein mine run	Chicago	2.50	2.50	2.50	**2.90@ 3.25**
Ind. 4th Vein screenings	Chicago	1.70	1.70	1.85	**2.00@ 2.25**
Ind. 5th Vein lump	Chicago	2.75	2.75	2.75	**2.75@ 3.00**
Ind. 5th Vein mine run	Chicago	2.40	2.40	2.40	**2.50@ 2.65**
Ind. 5th Vein screenings	Chicago	1.70	1.70	1.75	**1.75@ 2.00**
Standard lump	St. Louis	2.15	2.25	2.25	2.25
Standard mine run	St. Louis	1.75	1.75	1.70	1.70
Standard screenings	St. Louis	0.90	0.85	0.85	**1.00**
West Ky. lump	Louisville	2.55	2.70	2.75	**2.50@ 3.30**
West Ky. mine run	Louisville	2.00	2.10	2.25	**2.00@ 2.65**
West Ky. screenings	Louisville	1.45	1.40	1.60	*1.05@ 2.00*
South and Southwest					
Big Seam lump	Birmingham	3.65	3.40	3.65	*3.00@ 4.05*
Big Seam mine run	Birmingham	2.50	2.15	2.15	2.00@ 2.25
S. E. Ky. lump	Louisville	3.65	3.50	3.40	*2.75@ 3.50*
S. E. Ky. mine run	Louisville	2.25	2.25	2.20	1.85@ 2.50
S. E. Ky. screenings	Louisville	1.45	1.40	1.50	*1.00@ 1.65*
Kansas lump	Kansas City	5.25	5.40	5.50	5.50
Kansas mine run	Kansas City	4.40	4.25	4.40	4.40
Kansas screenings	Kansas City	3.15	3.25	3.25	3.25

* Gross tons, f. o. b. vessel, Hampton Roads.
† Advance over previous week shown in **heavy type**, declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	July 12, 1921 Independent	July 12, 1921 Company	July 19, 1921 Independent	July 19, 1921 Company	July 26, 1921† Independent	July 26, 1921† Company
Broken	New York	$2.61	$7.85@$8.15	$7.40@$7.75	$7.75@$8.00	$7.40@$7.75	**$8.00@$8.25**	$7.40@$7.75
Broken	Philadelphia	2.66	8.00@ 8.20	7.55@ 7.85	8.00@ 8.20	7.55@ 7.85	8.00@ 8.20	7.55@ 7.85
*Broken	Chicago	5.62	12.75	12.70	12.75	12.45	*12.40*	12.45
Egg	New York	2.61	7.80@ 8.25	7.40@ 7.75	7.75@ 8.00	7.40@ 7.75	*7.55@ 7.85*	7.40@ 7.75
Egg	Philadelphia	2.66	8.00@ 8.20	7.55@ 7.85	8.00@ 8.20	7.55@ 7.85	8.00@ 8.20	7.55@ 7.85
*Egg	Chicago	5.62	12.60	12.70	12.60	12.45	*12.40*	12.45
Stove	New York	2.61	8.40@ 8.50	7.70@ 8.10	8.00@ 8.25	7.70@ 8.10	8.00@ 8.25	7.70@ 8.10
Stove	Philadelphia	2.66	8.25@ 8.70	7.90@ 8.25	8.40@ 8.50	7.90@ 8.25	8.40@ 8.50	7.90@ 8.25
*Stove	Chicago	5.62	13.20	12.95	13.20	12.70	*12.70*	12.70
Chestnut	New York	2.61	7.80@ 8.25	7.70@ 8.10	7.65@ 7.90	7.70@ 8.10	*7.50@ 7.75*	7.70@ 8.10
Chestnut	Philadelphia	2.66	8.25@ 8.60	7.80@ 8.25	8.25@ 8.60	7.80@ 8.25	8.25@ 8.60	7.80@ 8.25
*Chestnut	Chicago	5.62	12.95	12.95	12.95	12.70	*12.70*	12.70
Pea	New York	2.47	4.75@ 5.00	5.95@ 6.45	4.50@ 5.00	5.95@ 6.45	4.50@ 5.00	5.95@ 6.45
Pea	Philadelphia	2.38	4.50@ 6.25	6.00@ 6.20	4.50@ 6.00	6.00@ 6.20	4.50@ 6.00	6.00@ 6.20
*Pea	Chicago	5.62	10.90	11.20	10.90	11.20	*11.10*	11.20
Buckwheat No 1	New York	2.47	2.60@ 3.00	3.50	2.65@ 3.00	3.50	**2.50@ 3.25**	3.50
Buckwheat No. 1	Philadelphia	2.38	2.50@ 3.00	3.50	2.50@ 3.00	3.50	2.50@ 3.00	3.50
Rice	New York	2.47	1.60@ 2.00	2.50	1.60@ 2.00	2.50	1.60@ 2.00	2.50
Rice	Philadelphia	2.38	1.75@ 2.00	2.50	1.75@ 2.00	2.50	1.75@ 2.00	2.50
Barley	New York	2.47	0.60@ 1.25	1.50	0.60@ 1.25	1.50	0.60@ 1.25	1.50
Barley	Philadelphia	2.38	0.75@ 1.25	1.50	0.75@ 1.25	1.50	0.75@ 1.25	1.50
Birdseye	New York	2.47	....	2.50	.....	2.50	.....	2.50

* Prices and freight rates net tons; quotations f.o.b. cars, Chicago.
† Advances over previous week shown in **heavy type**, declines in *italics*.



Coal Age Index 89, Week of July 25, 1921. This diagram shows weekly changes in the spot prices of bituminous coal in the United States as a whole. All prices are reduced to one figure and compared with the average government price of 1918, taken as 100. Actual spot prices for each coal are given in the table in this review.

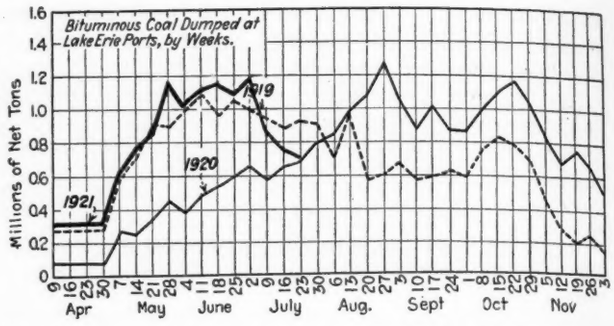
dom, England being the destination of 536,074 gross tons, Scotland 7,019 gross tons, and Ireland 217,246 gross tons, a total of 750,339 gross tons; all clear gain.

Exports through Hampton Roads declined during the second week of July to 323,186 net tons (233,548 tons of cargo and 89,638 tons of bunker) from a total of 373,737 net tons the week ended July 9 and 616,869 tons the week of July 2. Save only for three weeks early in April, bituminous coal moving through Hudson River gateways was the lowest (2,444 cars) during the week of July 16 of any time in the past year and a half.

ANTHRACITE

Predictions have been rife for the past six weeks that anthracite was due for a fall at once. It is remarkable how, when folks are not taking the coal into their cellars and the retail yards are all full, the hard-coal producers still find places to put the large output they are consistently sending forward. Coming back strong from the holiday week, production in the week of July 16 went to 1,876,000 net tons, greater even than the 1,868,000 tons the week before the celebration of the Fourth.

Reports from the anthracite consuming cities, however, are more disquieting this week than at any time this year and the pressure has begun to be felt at the mines. Production cannot indefinitely be maintained with but three or four sizes going on the market and the remainder backing up at the breakers. Prices of anthracite are being held firm by the companies, but independents are offering concessions even below company circular.



Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

(NET TONS)

BITUMINOUS COAL

Total Bituminous, Including Coal Coked

	1921 Week	1921 Calendar Year to Date	1920 Week	1920 Calendar Year to Date (a)
July 2b	7,658,000	198,383,000	10,286,000	258,182,000
Daily average	1,276,000	1,279,000	1,714,000	1,659,000
July 9b	6,186,000	204,569,000	9,659,000	267,841,000
Daily average	1,237,000	1,278,000	1,932,000	1,668,000
July 16c	7,359,000	211,928,000	10,880,000	278,721,000
Daily average	1,227,000	1,276,000	1,813,000	1,673,000

(a) Less two days' production during New Year's week to equalize number of days covered for the last two years. (b) Revised from last report. (c) Subject to revision.

ANTHRACITE

	1921 Week	1921 Calendar Year to Date	1920 Week	1920 Calendar Year to Date (a)
July 2	1,868,000	46,109,000b	1,778,000	44,608,000
July 9b	1,525,000	47,634,000	1,541,000	46,149,000
July 16	1,876,000	49,510,000	1,840,000	47,989,000

(a) Less one day's production during New Year's week to equalize number of days covered for the last two years. (b) Five-day week.

BEEHIVE COKE

Week Ended July 16 1921(a)	Week Ended July 9 1921 (b)	Week Ended July 17 1920	1921 to Date	1920 to Date (c)
43,000	35,000	363,000	3,475,000	11,631,000

(a) Subject to revision. (b) Revised from last report. (c) Less 2 days' production during New Year's week to equalize number of days covered for last two years.

English Coal for German Ports

A Hamburg coal importer, speaking on behalf of the northern German coal trade, points out the importance of English coal for consumers located at the German seaboard, where before the war 95 per cent of the local demand was supplied by English collieries and where even German lignite briquets could not compete with foreign coal. Although American coal can be had at 600 to 700 marks per ton, it will never play an important rôle in German economic life, since English best smalls can be obtained at about 20s. per ton and English coal exporters are now offering at prices lower than the pre-strike quotations.

That German reparation coal has not only been going to the United Kingdom but also to Scandinavian countries is revealed by the offers submitted by a Dutch firm to Swedish consumers, the fuel in question being rough coal, 16 to 20 per cent volatile matter, 6 to 10 per cent ash, which is quoted at 23 florins, f.o.b. Rotterdam. Unusual activity is also noted in the South-German coal markets, large shipments of Saar coal for Scandinavian and English account having recently been made.

WESTPHALIAN AND UPPER SILESIAN OPERATORS have requested permission of the government to increase the price of their coal, basing this request on the additional cost caused by the new duties on coal.

SPANISH COAL MINERS in the district of Asturias are threatening a strike for higher wages. The men are demanding an increase which would raise annual production cost 24,000,000 pesetas.

United States Coal Exports in June

Exports of coal and coke, as reported by the Department of Commerce for June, 1921, revised figures for June, 1920, are as follows, in gross tons:

	June, 1920	June, 1921
Anthracite	511,951	495,896
Bituminous	3,132,253	3,314,513
Exported to:		
France	258,877	147,333
Italy	344,243	258,735
Netherlands	175,189	86,031
Sweden	173,721	5,189
Switzerland	117,751	.....
Canada	1,193,767	1,412,497
Panama	10,167	8,522
Mexico	7,003	17,830
British West Indies	5,210	7,525
Cuba	107,609	71,750
Other West Indies	10,828	14,421
Argentina	120,267	92,727
Brazil	64,055	57,127
Chile	35,077	1,935
Uruguay	19,829	15,861
United Kingdom:		
England	.....	536,074
Scotland	.....	7,019
Ireland	.....	217,246
Other countries	488,660	356,691
Coke	55,420	19,911

Foreign Market And Export News

Continental Coal Markets Dull

British Output Gaining—Inland Consumers Replenishing Stocks—Exports Begin—Outlook Not Favorable to Higher Prices—Export of Belgian Coal to England Ceases

(By Cable to Coal Age)

Unofficial reports show a considerable improvement in the production of coal in Great Britain during the week of July 23. No official figures of output are available, it having been announced in London last Saturday by the Department of Mines that it is not yet possible to collect figures of weekly output since the resumption of work by the miners, the reason assigned being the difficulty of getting the data from the coal operators, who are disinclined to divulge their figures.

Unofficial estimates place the production last week (July 18-23) at seven-tenths of normal, but it is obviously necessary to discount this figure, which would indicate something over 3,000,000 gross tons, because not covering operations in outlying fields. Nevertheless, each day sees larger quantities available for export, for which, despite the softness of the market, prices are firm. Best Admiralty large coal, f.o.b. Cardiff, is unchanged from last week at 47s. 6d.@50s.; best Cardiff smalls unchanged at 25s.@30s.; best Durhams, 45s.@50s., but Tyne primes dropped from 40s.@42s. 6d. last week to 38s. 9d. @40s.

From Antwerp it is announced that as a first sign of return to normal, the exportation of Belgian coal to England has ceased, and the importation of British coal has begun.

American coal was quoted last week at Rotterdam at 27 guldens per gross ton compared with 25 guldens for Welsh coal.

Exports to Britain at End—French Coal Prices Due to Drop

(Paris Correspondence of Coal Age)

Prices are very firm in the Nord and Pas-de-Calais as well as in the central districts, especially for bituminous and sized coals, for which there is a persistent inquiry. The smaller sizes, however, are difficult to dispose of. Exports to the United Kingdom are now at an end and it is expected that prices for home-produced coal will come down as soon as a few cargoes of British coals reach French ports. There also is much likelihood of wages being reduced ere long in the French mines. A reduction had been contemplated in the Loire district to operate from July 15, this reduction being necessary to permit reducing the price of these coals, which are more and more difficult to dispose of.

With the coming holiday period things are rather quiet and only house coal dealers are in the market for rather important quantities, which the mines cannot always supply fast enough. It should not be overlooked that the reason for these important purchases of house coals in summer months is that in order to avoid heavy stocks the mines grant fairly important reductions for coals lifted during July, August and September. The coals are loaded in barges which make a long journey, and consequently the coals thus cheaply bought and paid for on a three months' basis are not burdening the yards of the big dealers too early before the cold sets in.

English coals are being freely offered for shipment during August and September, but very little business is done, buyers here having become used to seeing prices drop when they hold off buying, which, under the present circumstances, is rather easy. French buyers also think that British exporters hasten to book as much business as possible at present prices, feeling themselves that prices are bound to come down.

AMERICAN COALS—Anthracite operators who can produce a clean sized commodity should study the possibility of sending coals to France. There has been a heavy shortage of this much-used commodity for years. Coals should not exceed 8 per cent maximum volatile matter and keep around 5 to 7 per cent ash.

GERMAN COALS — Nothing fresh to report here. Negotiations are going on to hurry supplies up to the mark of Germany's compulsory deliveries, which of late have not been anywhere near attained.

C.I.F. Prices, American Coal, Gross Tons, July 23

River Plate, including Buenos Aires, Rosario and Montevideo: Low volatile, $10.40@$10.60; high volatile, $9.55@$9.75.

West Italy, including Genoa, Palermo and Naples: Low volatile, $10.90@$11.10; high volatile, $10.05 @$10.25.

East Italy ports, including Venice: Low volatile, $11.40@$11.60; high volatile, $10.60@$10.75.

Rotterdam: Low volatile, $10.65@$10.85; high volatile, $9.95@$10.15.

French Atlantic ports, including Marseilles, Havre, and Bordeaux: Low volatile, $10.65@$10.80; high volatile, $9.95@$10.20.

Scandinavian ports: Low volatile, $11.90@$12.10; high volatile, $11.10@$11.35.

Petrograd: Low volatile, $12.65@$12.85; high volatile, $11.85@$12.

Foreign Coal Shipments Slump at Hampton Roads

Business at the Hampton Roads piers during the week continued dull, dumpings remaining at approximately the same figure as for the preceding week. A total of approximately 375,000 tons of coal passed over the piers, while vessel tonnage awaiting cargo increased slightly during the week. No appreciable change in coal prices was noted, Pools 1 and 2 being offered at $5.75@ $6, and other pools from $5 to $5.25 per ton, f.o.b. the piers.

PIER SITUATION

	Week Ended July 14	Week Ended July 21
Norfolk & Western Piers, Lamberts Point:		
Cars on hand	3,450	2,793
Tons on hand	162,774	135,076
Tons dumped	135,315	182,047
Tonnage waiting	54,375	48,850
Virginian Ry. Piers, Sewall's Point:		
Cars on hand	1,984	2,111
Tons on hand	99,200	105,550
Tons dumped	38,586	59,039
Tonnage waiting	696	5,673
Chesapeake & Ohio Piers, Newport News:		
Cars on hand	2,224	2,502
Tons on hand	111,200	125,100
Tons dumped	144,230	132,725
Tonnage waiting	40,605	80,800

The foreign shipments of coal slumped appreciably during the week, less than twenty vessels having sailed abroad with coal. This is in strict contrast to the business of June and early July, when all berths at the three local piers were practically filled all the time and the piers were working three shifts per day.

Freight rates during the last two weeks have declined considerably, in the majority of cases having dropped $1 per ton or more below the rates which obtained during the rush of business in May and June. Vessels on the spot here appear eager to get cargoes at any reasonable figure to pay expenses and to save demurrage.

CLEARANCES

		Tons
For Africa:		
Br. SS. Heathfield	for Dakar	6,880
Br. SS. Egremont Castle	for Haifa	6,781
For Brazil:		
Br. SS. Trecarne	for Buenos Aires	6,366
Dut. SS. Zaandijk	for Buenos Aires	4,686
Br. SS. Nilemede	for Buenos Aires	5,381
For Cuba:		
Swed. SS. Gothia	for Havana	2,858
For France:		
Jap. SS. Thames Maru	for Marseilles	7,254
Br. SS. Bankdale	for Marseilles	5,516
Fr. SS. Cambronne	for Nantes	4,391
Nor. SS. Urd	for St. Nazaire	4,520
For Gibraltar:		
Br. SS. Volumnia		7,685
Nor. SS. Stiklestad		9,167
Br. SS. Dunclutha		5,354
For Greece:		
Br. SS. Clan McIntosh	for Piraeus	5,773
Jap. SS. Jufuku	for Piraeus	2,095
For Italy:		
Ital. SS. Attivita	for Naples	7,943
For Russia:		
Span. SS. Pepita Mumbru	for Petrograd	5,981
Dut. SS. Salabangka	for Java	2,215
Br. SS. Dront	for Rosario	4,021
Nor. SS. Belvernon	for Santiago	723

Eighteen Shipping Board vessels which were brought here from the alleged "graveyard" in Camp Eustis during the height of the coal shipments to Great Britain have been ordered back to their anchorage without having moved from port. None of them was con-

signed, the settlement of the British strike having come too quickly for them to load their cargoes.

Ruhr Production Declining

Ruhr output in June, according to the final official figures, published last week, was 7,753,000 metric tons. In the week ended July 9 output was 1,574,000 tons, a drop of about 200,000 tons from the weekly rate in June. Stocks at the mines are slowly but steadily decreasing and deliveries to France under the treaty terms are considerably short of the mark set.

In view of the entangled situation in Upper Silesia, the increase of production in the Ruhr district has become a very pressing problem. The coal tribute to the Entente countries is causing increased difficulty, as a sharp control is now exercised with regard to the quality of the coal supplied. The truckloads of coal refused on the ground of deficient quality are now averaging over one hundred per day. The simple expedient—to increase the production by extra shifts—which has worked quite satisfactorily, had, at least for the time being, to be discarded, the miners having by a large majority ruled it down. A new agreement has come into force with the miners of the Ruhr district, providing a considerable increase of wages.

Reports From the Market Centers

New England

BOSTON

Acute Midsummer Dullness Prevails—Market Being Carefully Combed Over—Rumors of Lower Wage Scale — Less Pessimism Among Shippers of High Grades — Hampton Roads Coals Accumulate—Anthracite Demand Falls Off Sharply.

Bituminous—There is no life whatever to the present market. Shippers make every move open to them and still only a minimum tonnage is being absorbed in any direction. A few sales are made from day to day, but in the deadest of summer seasons before the war more coal was being placed than is going forward in 1921. Purchases are confined, as for several weeks past, to the more conservative steam users, and even some of these who were buying a few weeks ago have found their stocks accumulating much faster than they expected. In other words, current consumption continues on a very light basis, due generally to slack industrial conditions and partly to the unexpected flow of water. A large number of the textile mills particularly can rely upon water power to move a fair share of the machinery; many of them are using barely 30 per cent of the fuel used a year ago. To the trade it seems as if every element in the present situation were unfavorable.

This territory, however, is being canvassed more closely than ever. Not only are the established local houses very active, but New York and Philadelphia agencies are sending men here periodically in the effort to move coal. The effect could not be more unfortunate, for long after the market improves buyers will lag all the more because of the way they are being pounded this summer. It is only the irreducible minimum fixed by operators themselves that prevents prices from dropping to much lower levels.

Rumors of a possible readjustment of wages in certain of the districts served by the B. & O. have been received here recently with a great deal of interest. Should similar efforts meet with support in central Pennsylvania and in the West Virginia smokeless districts the trade would realize that a return to more nearly normal conditions would be on its way. The 1917 scale has been suggested and coal people everywhere will watch developments with real concern. Buyers here feel that spot quotations now are too high and those who are themselves running mills almost solely to furnish work for operatives are firm in their prediction that steam coal will have to sell for less next year, if not during the present season.

Pocahontas and New River continue extremely quiet. The slump in offshore business has resulted in cargo accumulations at the Hampton Roads piers. Many of the agencies have been embargoed, and this seems to have fallen more heavily upon those in less close touch with export and bunker trade. Coastwise there is next to no business; when an inquiry turns up there is the keenest kind of competition to land the order.

Marine freights from Norfolk, Va., to Boston are easy at $1.20@$1.25 on bottoms down to 1,500 tons, and when this moderate figure is added to $5.60@$5.70 per gross ton f.o.b. Hampton Roads, it is easy to see that the old Tidewater zone, within 25 to 50 miles of rehandling plants at Providence, Boston and Portland, is again susceptible to the smokeless coals, so far as differentials are concerned.

Anthracite — The producers are rapidly finding themselves without orders. One unfailing sign of quiet times is the effort of "independents" to interest retailers in their output at considerable concessions below company figures. Few distributors are in any position to take advantage of such offers, but if they were, the tendency is strong toward the factors who try to stabilize conditions rather than disturb them without warrant or thought for the effect upon the public.

Retail trade is still in the doldrums. Small householders continue to withhold purchases, stocks have accumulated in the yards, and there is little hope of any sustained demand until after the vacation season.

Tidewater—East

NEW YORK

Anthracite Trade Conditions Shift in Favor of Buyers — Independent Premiums Vanish — Some Mines on Part Time — Bituminous Demand Spotty — Prices Sag Steadily.

Anthracite—In the anthracite trade conditions are steadily changing in the favor of buyers. On independent coal premiums have practically disappeared, even in the cases of sizes in best demand, while the balance of the list can be had at some concessions from circular. Individuals are cutting company prices on pea coal and smaller all the way from 50c. to $1 a ton.

In the domestic sizes stove coal is the only size for which there are still a good number of orders and even that size is not universally wanted, for many dealers have practically all they need at present in their yards. Many cancellations and requests for deferred shipments are being received, though these are accounted for in many instances by the fact that retail dealers who would be pleased to take straight stove have no room for other sizes which they are obliged to accept in order to get stove.

Egg has backed up rapidly during the past week or so and is becoming almost as difficult to move as chestnut, the principal difference being that egg constitutes only about 15 per cent of the production, while chestnut tonnage represents about 25 per cent. Most of the companies have begun to stock the latter size, though only on a small scale. It is doubtful if the companies will put any great amount of any of the domestic sizes on storage, for the stocking places are well filled with steam sizes.

There has been some improvement at tide and the situation is in little better shape as regards the number of distress lots being forced for sale.

Bituminous—Some of the bituminous coal shippers report that they have been selling a little more coal lately, while others say they have observed no picking up in demand. In view of these conflicting stories, it is rather difficult to size up the situation, except to say that spotty improvement of this sort in the past has often turned out to be the forerunner of a more general revival.

Contract asking prices have been lowered along with spot prices, although

many operators are not keen about entering into long-term obligations at this time. It is possible to buy Pool 10 coal on contract to April 1, 1922, at $2.50, and Pool 9 at $3 and in some cases at $2.75. This is about a dollar below what producers were holding for in April this year. Low grades have been forced out of the market to a large extent by the competition of higher grades. With Pool 10 selling close to $2 and Pool 9 around $2.35, Pool 11 has been forced so far below the $2 mark that most producers of that classification and lower have closed down.

There appears to be more distress coal in the regions than at Tidewater. Shippers have sustained such heavy losses by sending coal to the piers on consignment that they have discontinued the practice to a large extent, but it is quite a fad with some operators to load all cars their sidings will hold and then send out a general S. O. S. to the wholesale trade. This accounts for some of the extremely low quotations heard of.

PHILADELPHIA

Anthracite Demand Recedes—Independents Curtail Productions — Retail Prices Slightly Off—Pea Price Being Cut—Steam Sizes Dormant—Bituminous Deliveries Light — No Contract Business.

Anthracite—More ground was lost in the retail anthracite trade this week. Any number of yards have reached the point where they are not putting out enough coal to meet expenses. Shippers also received further cancellation of orders and it is only a matter of days now when some of the largest producers will have to curtail production. This week several of the independents skipped a day or so, and others are finding it convenient to close down for repairs to breakers.

Should closing down become general the trade expects some criticism as to the continuance of high prices, for it is a foregone conclusion that two of the larger companies who adopted the plan of a 10c. increase will continue it. Even now there is murmuring that the operators are trying to hold up prices by cutting production. It is conjectured that the independents will not make any further increases, being satisfied to hold present prices, which they are doing only with greatest difficulty.

Some independent shippers have been shading prices on all sizes from egg to pea inclusive, but rarely going below company circulars. The greatest recession is in pea coal, which all interests are having difficulty in moving. Quite a few cars of this size are standing on demurrage at the mines and while heretofore the independents' lowest price has been about $5.50 there is quite a little good coal of this size coming out at $5.25, and some of the low grades are going at much less than that.

The highest quoted retail prices this month, per gross ton, with 50c. added for carry, are: Egg, $14; stove and nut, $14.25; pea, $11.50. It is reported however, that coal is being sold at least 25c. less than this. Despite this tendency to shade retail figures less coal has been delivered in the last ten days than at any time since the spring trade opened, and the tendency is still downward.

The market is glutted with steam coals and cut prices are no inducement to the consumer. All companies are fast filling their available storage space, and some of the large producers are now filling storage yards that have not had any fresh-mined coal for five years.

Bituminous—Extremely light local deliveries rule the market, with no signs of an early improvement. The producer is urging the consumer to take in fuel and avoid a possible shortage in the autumn, and while the former sees little tangible results he is at least on record should his predictions prove to be half true.

The market is tending more than ever to a quality basis, with most of the sales being made on Pools 1 and 9 grades, with Pool 10 being fairly well in demand, but Pool 11 coal is close to a minimum of orders. Some consumers are inclined to complain of slow delivery. This is due to their having allowed themselves to almost run out, and the producer operating only when he receives a sufficient run of orders to make it worth while.

Some producers with contracts intimate that their customers are taking little or nothing, believing that the consumer continues to take advantage of the market, which is about true, for with contracts on a basis of $3.50@$4 there is much temptation to buy similar coal at $3, and occasionally less than that. This condition of low prices has persisted for so long that many consumers are less than ever interested in contract figures, and it usually is these concerns that are doing light stocking.

The prices on spot coal have changed little from those recorded during the past two weeks, and it is thought now that the fall season will easily be reached without further general recessions.

BUFFALO

Shippers Find Consumers Hard to Please—Volume of Business Seems to Shrink—Anthracite Trade Slowing Up.

Bituminous—"The worst season that the operator has ever seen," is the comment of a shipper who acts in the capacity of both operator and jobber. He admitted that the jobbers were doing something, for they would not handle coal unless there was at least some margin of profit in it, while the operators have such a heavy overhead expense, as a rule, that they can sometimes operate at a loss that is less than the loss incurred while standing still.

The jobber has to work very hard to put his sales through, even after he thinks he has made them. This is always the case in extremely dull times and maybe it is necessary to the proper seasoning of the middleman. At any rate he is getting it, and at the same time is decidedly better off than the operator is. And they are now saying that it probably will be spring before trade is back to normal and maybe before it begins to recover. It is pretty generally agreed that the volume of coal business is running down. Jobbers say so of their trade and reports from the mining districts confirm their views.

Bituminous prices consequently are sagging and unsteady. Nobody quite agrees with another as to what they are, but a fair average is $3 for Youghiogheny gas lump, $2.75 for Pittsburgh and No. 8 steam lump, $2.60 for Allegheny Valley mine-run and $1.75 for slack, adding $2.36 to Allegheny Valley and $2.51 to other coals to cover freight. Slack is not so weak as it was on account of the falling off of Lake shipments, which cuts down the surplus.

Anthracite—The movement is as slow as ever. Coal-delivery trucks are a rarity on the street. Nobody pays any attention to the warnings. The hold-offs are of the sort who still look in the almanac for their weather. They believe the stories that coal is coming down, rather than the warning from the authorities that it is risky to delay. Coal comes this way from the mines in good quantity and the rail-line demand holds up pretty well.

Lake shipments are still good. The amount for the week is 120,900 net tons, of which 62,000 tons cleared for Duluth and Superior, 19,500 tons for Milwaukee, 14,500 tons for Chicago, 11,000 tons for Fort William, 9,800 tons for Sheboygan, 2,900 tons for Marquette and 1,200 tons for Marinette.

Freight rates are easy at $1 to Marinette, 65@70c. to Chicago, 60c. to Milwaukee and 50c. to Duluth, Marquette and Fort William.

Coke—Negotiations are on for quite a big block of furnace coke, as one of the idle iron factories is preparing to start up soon temporarily, but otherwise the situation is not improved The outlook is for no stir right away and if there is a fall trade in either iron ore or coke the carriers at least will be surprised. It will be the first let-up of the sort, though, in the history of the lake trade. Coke prices remain at $4@$4.50 for 72-hour Connellsville foundry, $3@$3.25 for 48-hour furnace, and $2.75 for stock, with a little domestic, chestnut size, moving at $5@$5.25, to which add $3.64 to cover freight.

BALTIMORE

Unsatisfactory Conditions Still Reign in Soft Coal — Boom in Exports First Half of Month, Lighter at Present Writing — Hard-Coal Buying Practically Suspended Pending Grand Jury Agitation.

Bituminous—The conditions in relation to bituminous coals remain practically unchanged in this section, which means that they are entirely unsatisfactory to the trade. If there is any change to be noted it has to do with

increasing sales of coal below the recognized market level. The unevenness of wage scales in some sections, with one mine working along old lines and the next-door neighbor working along a new schedule, is in part responsible. There has been a failure in many cases of the producers of better-grade steam coals to hold them to $2.50 a net ton f.o.b. mines or better.

Considerable of Pool 9 coal is now offering in this market at around $2.25 a net ton, and there have been not infrequent sales as low as $2. Pool 10 is offering widely at $2, with occasional cuts below that figure, and Pool 11 is selling at a mine basis of $1.70@$1.80. Gas coals are just as weak, best Pennsylvania screened being offered in this market at $2.25 a net ton mine basis generally and below in individual cases. Run-of-mine coals can be obtained down to $1.35, with a general run around $1.60.

After a smashing big movement for the first twenty days of July there came a curious sharp lull in foreign movement from this port. Up to that date there had cleared a total of forty-two ships with export coal, 262,039 tons cargo and 29,307 tons bunker. Then for five days there was a complete collapse, not a ship clearing from this port with foreign-bound coal. At present there is a gradual resumption, but it is not marked. The fact that seventeen of the ships were destined for England and four for Ireland in the opening days of the month, whereas that movement has now stopped completely, explains part of the condition.

Anthracite—Hard-coal buying at retail in this section remains practically suspended pending the action of the Grand Jury which has been investigating the operations of the Baltimore Coal Exchange. The extremely unfortunate impression seems firmly rooted in the public mind that lower retail prices will result. All the talk of coal men in the world that now is the low-buying period before winter does not change this view. Some drastic education is needed, otherwise the buying public will be treated to a disastrous experience during the coming fall and winter when the coal companies will be unable to promptly move the needed fuel.

Northwest

DULUTH

Accumulations of Both Soft and Hard Coal Grow on Docks—Trade Extremely Dull as Depression Has Finally Hit Duluth.

Constantly increasing piles of coal on the docks, with outward shipments growing daily less and less, is the condition of the Duluth-Superior harbor, and dock men here frankly admit that unless the "break" comes, docks in the harbor will be filled in two weeks. This has been predicted before, but has not happened this year, as inbound shipments have either fallen off or outbound shipments have increased in time to prevent a calamity. At present more than 4,000,000 tons are piled high on docks throughout the circle of the harbor, more coal is coming from lower Lake ports and outbound shipments are virtually at a standstill. The maximum capacity of the docks is 5,000,000 tons.

Railroads, of course, are taking some coal, but on contracts made last year. This outward shipment is merely a drop in the bucket compared with the coal which is coming in, and dealers both in the city and throughout the Northwest generally are unable to help out because of financial conditions.

Last week forty-eight cargoes were received at this port, of which seven were anthracite. Fourteen cargoes are reported on the way, of which three are anthracite, but these started late last week and are nearing port, and no new shipments are reported. Instead of bettering, the industrial market here is worse now than it has been in some months. Duluth did not feel the acute industrial depression at the same time as did the remainder of the country, and now, when other parts of the country are on the mend, Duluth is in the trough.

MINNEAPOLIS

Local Advertising Being Used to Urge Buying—Receipts Lake Coal Fall Off as Docks Fill Up.

It is a hopeful sign that there is some increase in the tonnage moving off the Lake Superior docks. The increased orders at the docks, if continued, will make room for more cargoes from the lower Lakes.

Efforts are being made, locally, to persuade consumers to buy. Last Sunday's papers, in both St. Paul and Minneapolis, contained lengthy articles describing the situation as to coal. While the stories display the usual confusion between hard and soft coal and assume some things which may not develop during the autumn, on the whole they are calculated to help present the matter of distributing delivery over a wider period.

The soft-coal situation to the steam user has shown a considerably better decline, with purchases being made at not far from half of some of the 1920 prices. Purchasing of soft coal is far from active. The buyers' strike is working as well as ever, in both wholesale and retail lines. This is the point upon which emphasis must be laid when urging the purchase of coal. Steam users are the ones who will make trouble during the coming autumn and winter, if there should be any serious tie-up to the coal movement.

It is a question whether there will not be a kickback to the gloomy predictions, if the expected rush of business does not materialize. People are overly suspicious of coal trade predictions, having been fed up for a number of years on prognostications that missed fire. If it should develop this autumn, as it has in the past, that there was no serious danger to those who were late in ordering, this situation will strengthen the feeling, already widespread, that the whole cacophony of early solicitation is merely propaganda to help business.

MILWAUKEE

Coal Trade at Standstill—Hot Weather Helps to Paralyze Business — Yards Heavily Stocked — Receipts by Lake Slowing Up.

The coal business at Milwaukee continues at a standstill. Extremely hot weather has increased the backwardness of buyers, and very little coal is moving out of the dock yards, which are filled almost to capacity. A concerted effort is being made in city and country to induce consumers to put in their winter supplies, as the yards must be relieved of some of their present loads to provide room for a normal winter accumulation. The storage yards of the coke plants likewise are glutted. Solvay coke producers are circularizing dealers urging them to press coke sales with a guarantee against any decline from the present price of $14 per ton for range and chestnut. Coal prices continue unchanged. An advance of 25c. per ton on anthracite is predicted Aug. 1, 15c. on account of the Pennsylvania coal tax and 10c. being the regular monthly advance. Lake receipts have begun to slow up and the receiving yards are not as busy as they were. Receipts during July thus far aggregate 72,910 tons of anthracite and 254,311 tons of soft coal, making the season's receipts up to this writing 473,391 tons of anthracite and 1,388,826 tons of soft coal. Last year during the same period the record was 339,063 tons of the former and 503,273 tons of the latter.

Inland West

COLUMBUS

Slight Improvement in Demand for Domestic Sizes Reported—As Lake Trade Falls Off, Demand for Screenings Improves and Prices Rise Appreciably.

The best feature of the Ohio coal trade is a slight increase in the demand for lump and other prepared sizes. This does not amount to much, but is sufficient to give more encouragement to producers and distributors alike. It is believed that the improvement would be much more noticeable if it were not for the freight-reduction agitation, which has the effect of holding up business to a large degree. The belief is still widespread that there will be substantial reduction in freight rates, and consequently consumers and dealers are playing a waiting game. Retail stocks are fairly good, as householders are slow in stocking up for the coming winter. In some instances the consumer has not the money to pay cash and dealers are

insisting on cash payment. Despite these bad features, trade shows some signs of improvement and there is a more optimistic feeling shown. Retail prices are fairly steady at the levels which have prevailed for some time. Hocking lump is selling around $6.50 delivered, while west Virginia splints sell for about $7.50@$7.75.

The Hocking Valley docks at Toledo during the week ending July 16 loaded 165,763 tons, as compared with 200,538 tons the previous week, making a total of 2,105,842 tons for the season. This is far ahead of the record last year at this time, when but 699,338 tons were loaded up to July 17. During the same week the T. & O. C. docks loaded 28,853 tons, as compared with 52,632 tons the previous week, making a total of 527,408 tons for the season.

Steam trade is slow in every particular and there are no signs of immediate improvement. Many of the larger consumers have full bunkers and adequate reserves. There is little if any resumption in manufacturing and this has had the affect of curtailing the demand for steam sizes. On the other hand, a reduction in lump production has had the effect of reducing the supply of slack, which is reflected on stronger prices for that grade. Railroads are not taking much tonnage, as little improvement in freight movement is reported.

CINCINNATI

Smokeless Prices Being Cut — Slack Shows Signs of Life as Output Declines —Retail Prices Firm.

Restricted demand for block and lump coal from all quarters has forced down the price for prepared sizes, while steam users and others needing nut, slack and screenings who have been buying on the open market have been forced to pay higher prices. Smokeless coal continues soft and spotty with most of the big companies holding up the price and smaller concerns inclined to make concessions in order to move accumulated tonnage. Big advertising campaigns carried on in local papers, using Hoover's latest declaration of a possible car shortage in the fall, have not resulted in any great rush on the part of domestic or other consumers to take on coal. River business is still active, heavy rains in the upper valley annulling need of an artificial wave to bring down 25,000 tons of coal for four Cincinnati retail concerns early in the week.

Kentucky slack showed a straight advance of 10c. to 25c. a ton and is quoted at $1.10@$1.35. West Virginia slack is firmer and quoted $1.50@$1.75, with mine run from both states at $1.75@$2. Lack of lump orders and better call for slack resulted in a drop on West Virginia lump to $2.75@$3 and on Kentucky lump to $3 in some sales, although most of the mines still want and are getting $3.50 for better grades.

Lump and block from New River are being offered at $5, though larger companies there and in the Pocahontas field want and are getting $5.50; egg is quoted $5@5.25 with some spot sales at $4.75; nut, very dull at $4.25@$4.50; run-of-mine, $3@$3.50; slack, $1.75@$3.

The retail market is steady despite changes in mine prices. July prices are still maintained as follows: Smokeless, lump, $9.50@$10; run-of-mine, $7.25@$7.50; slack, $6.50; bituminous, lump, $7.25@$7.75, with highly advertised grades up to $9; run-of-mine, $6.25@$6.75; slack, $5.50@$6.

DETROIT

Demand Lacking for Steam or Domestic Sizes of Bituminous—Shipments of Small Volume—Little Free Coal in District.

Bituminous—Detroit consumers of steam sizes of bituminous have not yet cast off the lethargic attitude that has been a prominent characteristic through the greater part of the year. While some purchases are made the buying is of small proportions compared to what has been regarded as a normal business in previous years. Buyers show no haste in acting on the advice of government officials and others to stock up now, if they would avoid a coal shortage next winter.

West Virginia lump is given a nominal quotation of $3.25@$3.50 per net ton; mine-run, $2.25@$2.50; nut and slack, $1.75@$2; Ohio lump, $3@$3.25; mine-run, $2@$2.25; nut and slack, $1.15@$1.25; smokeless lump and egg, $5.25@$5.50; mine-run $3@$3.50; nut and slack, $2@$2.25. The quotations, it is explained, are not an accurate portrayal of the market situation.

Anthracite — Excessively high temperatures and reluctance of consumers to pay what they regard as high prices are factors in holding back sales of anthracite prepared sizes to household consumers. Distribution has been very slow and retail dealers are warning their customers that unless a larger proportion stock up now, some may find it difficult to get coal next winter.

ST. LOUIS

Screenings Show a Little Improvement —Domestic Buying at Standstill— Country Demand a Trifle Better.

Domestic buyers continue indifferent in spite of evidence showing what the future is likely to be both as to price and supply. The country dealer finds it a little different. Those who have money are ordering coal—most of the farmers are waiting for crop money and the unemployed are without funds.

Such as is moving in soft coal is Carterville. Apartment needs of Standard coal are pretty well in. Mt. Olive is slow. Some anthracite is moving and a little of gas and byproduct coke. Steam picked up on Standard screenings, both local and for Chicago. They moved up from around 85c. to over $1 at the mines. No steam market to speak of in the country.

The first signs of a car shortage in the near future is noticeable in the fuel shipments to the Frisco R.R. from the Illinois fields. Up to the present cars have been furnished. Now the mines are permitted to load any kind of cars because the Frisco hasn't the equipment needed.

CLEVELAND

Coal Trade Watching Signs of Improvement in Steel Industry—Lower Rates for Lake Coal Effective Aug. 1.

Bituminous—The best news that has broken for the coal trade in this district for some time is that which concerns the signs of betterment in the iron and steel industry. While there has been some demand for coal from public utilities, public schools and municipal departments, real activity at the mines awaits renewal of industrial activity.

For some months the steel industry has been running at about 25 per cent of capacity. Lower prices, more active competition and prospects of buying by the railroads when the government helps straighten out their financial difficulties are expected to combine to increase steel-mill operations to at least 50 per cent by autumn. This will be significant for the coal industry in this district.

Any increase in industrial activity would certainly bring about some buying of coal, in the opinion of leading operators. This is true because of the general depletion of stock piles. During the period of excessive curtailment and extreme uncertainty plants have been buying entirely from hand to mouth. More steady operation and better prospects will mean freer laying in of coal supplies, it is believed. Not, however, until the freight rate outcome becomes clearer will buying go forward normally. In the last few days industrial leaders in this district have heard it whispered that some of the most powerful railroad executives have completely changed their attitude and are now convinced that lower rates are essential to a greater volume of traffic and better earnings. This change of sentiment among the railroads may have some important consequences before long. In the meantime the coal market remains inactive and prices have shown no material change.

With the diminishing operations by reason of reduced shipments to Lake, the volume of slack coal available in the spot market has been considerably reduced, accompanied by a decided stiffening in the price, it being stated that some small quantities are being sold at $1.60 per ton, as compared with the low price of $1@$1.10 a week or so ago. However, industrial activity remains at a low ebb and operators advise that the general trade is quiet, with both contract and spot inquiries negligible.

Receipts of bituminous coal at Cleveland for Cleveland industries and retailers for the week ended July 16 amounted to 688 cars; divided, industrial, 553; retail, 155 cars; as compared with a total of 598 cars the preceding week, thus showing an increase of 135 cars over the low record of the year established last week.

South

BIRMINGHAM

Little Activity in Steam or Domestic Market—Demand Light for Steam and Quotations Unstable.

There is nothing to report in the way of improvement in trade conditions here, as trade requirements are very light and provided for in the spot market for the most part, where the buyer can almost name his own price. Consumers are not anticipating their needs far ahead, and there is no contract business worth mentioning.

During the past week the Empire Coal Co. closed a contract with the Cotton Belt for its fuel requirements in Texas territory for the year beginning Aug. 1, shipments to be made at the rate of 10,000 to 12,000 tons per month. Quotations on steam coal f.o.b. mines are reported as follows, but limited quantities can be bought from 25c. to 50c. lower in the spot market:

	Mine-Run	Washed
Big Seam	$2.00@$2.25	$2.25@$2.45
Carbon Hill	2.00@ 2.75	2.65@ 2.75
Pratt	2.50@ 2.75	.....
Cahaba	2.85@ 3.25	3.00@ 3.25
Black Creek	2.75@ 3.00	3.00@ 3.45
Corona	2.50@ 2.75	.....

Although domestic quotations have not changed since the first of the month there is little inquiry and shipments from the mines on contracts are being held down materially. Dealers report little activity in the retail market and most yards have taken very nearly all the coal they can stock. Prices range as follows f.o.b. mines per net ton:

	Lump and Nut
Big Seam	$3.00@$3.25
Big Seam (Mt. Carmel)	3.50@ 4.05
Carbon Hill	4.05
Black Creek	4.82@ 5.70
Cahaba	4.75@ 6.95
Montevallo	6.15@ 6.95

LOUISVILLE

General Business Quiet—Much Complaint from Jobbers and Operators Concerning Slow Movement.

There has been a good deal of price cutting reported in the past few days, and some eastern Kentucky coals have been reported as selling at very low levels. These sales do not represent distress or demurrage coal, but are the result of operators needing business temporarily and being willing to mine coal at no profit or even at a loss. Some of the operators today are at a point where they feel that there will be a heavy and higher-priced demand later, and that it is now necessary to hold together their organizations while awaiting this demand.

Railroad and industrial buying continues slow as a whole, while demand for gas and byproduct coal as such is still off. Eastern Kentucky is quoting Harlan district at $3@$3.50 for prepared, $2@$2.50 for mine-run and $1.40 @$1.65 for screenings. The Hazard district is asking $2.75@$3 for prepared, $1.85@$2.25 for mine-run and $1@$1.25 for screenings. Elkhorn and West Virginia are fairly close to Hazard in price, while Straight Creek and Jellico are taking Harlan rates.

Retail prices in Louisville are being maintained regardless of the slump in prices at the mines, as there has been a freight-rate increase absorbed by the retailers, and present prices are not expected to hold very long.

News From the Coal Fields

Northern Appalachian

ANTHRACITE

Conditions Worse Than Any Time Since the War—Broken, Stove and Egg Move More Readily Than Other Sizes.

Conditions in the anthracite fields are at about the worst that they have been since before the war. Although only a few of the independent companies are not operating it is exceedingly difficult to move the coal at the present time. It does not even seem to be a matter of price for it does not seem possible to move it, no matter what the price.

Broken, egg, and stove coal move more readily than do the other sizes. One of the large coal companies has approximately 350,000 tons of chestnut coal in one yard. Buckwheat No. 1 seems to move more readily than any of the steam sizes.

PITTSBURGH

Pittsburgh Steam Coal Undersold by Non-union Districts — Pittsburgh Gas Coal Presents Fair Market.

The condition of there being scarcely any market for Pittsburgh steam coal continues on account of the competition of non-union districts, particularly the Connellsville region. With the additional reduction made July 1 by two of the independent operators in the Connellsville region and followed soon after by the other independents in the region, there is a wide difference in the mining costs. Connellsville operators could make a profit and still sell at less than the cost to the Pittsburgh district.

Pittsburgh district gas coal still has a fair market, as there is little if any coal from non-union districts of comparable grade, and as Pittsburgh producers of gas coal would rather leave the coal in the ground than sell at cost or less they are making some profit, although on a limited tonnage since even for gas coal the demand is quite restricted.

The steel industry's operations have not decreased farther and in the Mahoning and Shenango valleys there has been a slight increase in operations in the past week or ten days. The average operation for the whole steel industry, however, is hardly over 20 per cent. The mills are taking more coal from the Connellsville region for steam purposes and are drawing but little on the Pittsburgh district.

Prices for Pittsburgh coal are practically nominal for steam grades, as there is hardly any buying, on account of competition from non-union districts, but gas coal has an open market. Prices are approximately as follows: Steam mine-run, $2@$2.15; steam or gas slack, $1.40@$1.50; gas mine-run, $2.30@ $2.50; screened gas, $2.85@$3, per net ton at mine, Pittsburgh district.

UNIONTOWN

Lack of Demand Restricts Output—Substantial Coke Market in August Unlikely—Prices Remain at Former Level.

The Connellsville coke region is devoid of market features either for coal or coke. There continues to be no demand and output therefore remains restricted. With the approach of August it seems unlikely that there will be any substantial coke market during the last month of summer inasmuch as furnaces, were they contemplating resuming operations, would have covered their coke needs. There is so little business going that quotations are becoming difficult to obtain, not sufficient tonnage moving to justify a quotable market. Prices therefore remain at the former level, scaling downward from $2 for coal, with $3 and $3.25 for furnace coke and $1 more for foundry coke.

CONNELLSVILLE

Furnace Coke Contract at New Low Price — Low-Phosphorus Coke at Premium — Production Better, but Still Very Light.

It is understood that the inquiry of the Wickwire-Spencer Steel Co., Buffalo, for 15,000 tons of furnace coke in August and the same amount in September, mentioned in the last report, resulted in a purchase from the largest independent operator at $2.75 per net ton at ovens. The price is, if anything, below the lowest guess that had been made as the probable price, but the furnace interest was in the position that it would not blow in the furnace involved unless a very closs price was made, and presumably there was, moreover, competition of by-product coke.

The Robesonia Iron Co., which makes low-phosphorus pig iron, has bought 7,500 tons a month for a short period from the Connellsville Central Coke Co., the reported price being $3.25. Especially good coke, low in phosphorus, is requisite, and it is said that only two or three plants in the region can meet the requirements, also that a contract with this furnace made recently with another operator had to be given up because the requirements could not be met. At the time that contract was made it was understood the price was about $3.60.

Spot furnace coke of standard grade

seems to be at about $3, there being reason to believe that reports of $2.85 and $2.75 coke being available refer to coke that is decidedly off. One operator is getting $2.75 for soft coke, cullings in the manufacture of a high-grade foundry coke, this coke being low in sulphur and ash, while some soft coke is to be had at much less. Foundry coke is in considerably better demand, there having been practically no demand early in July.

The market is quotable at $3 for spot furnace, $2.75@$3 for contract furnace, depending on length of contract, and $4@$4.50 for spot foundry according to brand, per net ton at ovens.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended July 16 at 7,900 tons by the furnace ovens, an increase of 1,700 tons, and 13,500 tons by the merchant ovens, an increase of $1,380 tons, making a total of 21,480 tons, an increase of 3,080 tons.

EASTERN OHIO

Production Declines—Spot Price of Slack Stiffens—Tonnage at Lake Docks Reduced.

A further decline in the volume of tonnage mined and a stiffening in spot prices on slack coal are the prominent features in the eastern Ohio mining industry during the week ended July 16, 1921. Production for the week was 365,170 tons, or 58.6 per cent of rated capacity, a decrease of some 33,000 tons from the last full-time week, the lowest of any week since early in May.

Figures given out by the Pittsburgh Vein Operators' Association indicate that mines worked 51 per cent of possible full time, compared with 55 per cent the previous week, producing 56.4 per cent of rated capacity. The output for railroad fuel account continues at a minimum, the percentage being estimated at 35.

It is the consensus of opinion that shipment of Lake cargo coal will show decreases henceforth, at least for six weeks, and that there will be no new life in that trade before Sept. 1. Stocks on hand at the lower Lake docks are now being reduced by reason of the fact that clearances from the docks are greater than arrivals from the mines. Docks are dumping around 2,500 cars per day, as compared with over 3,500 several weeks ago.

There are rumors that the railroads, in order to stimulate the Lake trade, will widen the destination territory to which the 28c. per ton reduction applies on Lake cargo coal.

UPPER POTOMAC

Most Mines Closed Down — Buying in Open Market Limited — Prices Remain Low.

Most mines in both the Upper Potomac and Georges Creek regions were either closed down entirely or limited to a few days' operation last week. Buying in the open market was also limited, not much coal moving on such a basis. Only a few large companies were operating and their mines were running only about half the time. Prices in consequence remained on their previously existing low level, with Pool 9 coal far off color in price, as it had been sold as low as $2.35 and $2.45 a ton.

FAIRMONT AND PANHANDLE

No Pronounced Recovery After Holidays—Many Mines Idle and No Spot Sales to Help Prices.

FAIRMONT

If production were on any larger scale in northern West Virginia during the weekly period ended July 16 it was only because there were but five days in the preceding week. Toward the end of the week production was speeded up to some extent, but in general mine idleness was very pronounced, there being 238 mines out of commission on the 16th with only about 57 at work. Although a few producers were getting inquiries for coal to be shipped on a three-months basis to the New York market, no spot buying was in evidence. Tidewater shipments were light and Lake shipments were even lighter. Mine run was not commanding more than from $1.75 to $2 and slack was averaging between $1 and $1.10.

NORTHERN PANHANDLE

Not more than 50,000 tons of coal were produced in the Northern Panhandle region during the period ended July 16, for no demand existed for any grade of coal. There was a general slowing down of shipments to the Lakes and many mines in the region were being closed down. The range on prepared sizes was from $2.40@$2.60, with mine run averaging not over $2.25 and slack at about $1.25.

Middle West

INDIANA

Cooler Weather Helps Retail Trade—Mines Affected Only Slightly—Purchasing Agents Active — Talk of Lower Freight Rates Discouraged.

The cooler weather of the past week has had a sort of psychological effect on the domestic consumer, and retail dealers all over the state are reporting more sales. The retail sales, however, have had only a slight effect at the mines. Operators are inclined to believe that if cooler weather continues for a couple of weeks some increased demand will be noticed. The very fact that prices in steam coal are so low is creating a little demand from those utilities and industries who are buying for future use.

There is a generally-accepted belief in Indiana that industrial conditions are due for a considerable improvement as cold weather approaches and purchasing agents are doing some buying and making a lot of inquiries. This source of demand is so steady and the buying is done so quietly that it is hardly noticeable in production and not noticeable at all in market prices. Screenings still may be purchased at from $1.80 to $2, depending on just how badly the operator wants the order and the amount of coal sought. Railroad officials here are discouraging all talk of lower rates and operators are not looking for any betterment in this respect until after the first of the year, and there are many who do not believe a reduction will be made then.

The general custom now on the part of the operators seems to be to get the best price possible, but move the coal. Every mine track in Indiana is loaded with coal, so that unless some is sold, the mine cannot operate. Many sidings also are stored with coal. The railroads are continuing to put back into first class condition their coal cars in preparation for some real business when it does start.

SOUTHERN ILLINOIS

Slight Improvement in Steam in All Fields—General Condition Not Satisfactory—Indications Not Good for Immediate General Improvement.

There was a slight change in the Carterville field with the beginning of the week in the movement of steam sizes. Otherwise there is nothing different from the situation of the past few weeks. Of the mines that are working some work one day a week and others get as much as four. Railroad tonnage shows a slight improvement especially on the Burlington. Domestic sizes are slow, and such as is moving is going North and Northwest with a little to Indiana. The St. Louis territory is not taking much.

Price conditions are peculiar. A few of the big operators still maintain the circular price of $4.05 on domestic sizes but with steam coal the price is whatever the market will bring. The independents picked up a little on domestic from $3@$3.25 on lump and egg, nut is still $3, mine-run $2.75, and screenings $1.50@$1.75.

In the Duquoin field prices are with one exception about the same as Independent Carterville and working time not as good. Mt. Olive district shows no change in conditions or prices.

The Standard field developed a little strength on screenings; not that there is any more demand, just a matter of sales strategy, strange as it may seem. They moved up from 85c. to $1 and better. No change otherwise from last week and nothing to indicate anything soon.

WESTERN KENTUCKY

Larger Operators Hold Firmly for Advanced Prices on Prepared Coal—Movement Rather Quiet, with Operations Averaging About Two Days a Week.

Western Kentucky operators in some instances have not made much money this year, and it is asserted that some of the smaller ones have lost a little money in their effort to hold organizations and keep going. As a result a number of the larger operators after close figuring of costs have advanced prices on lump coal to $3.25 a ton, and are holding firmly for that figure,

whether they ship much coal or not. Some of the smaller concerns and beginners are shipping coal at $3 a ton, but in some cases the quality is not of the best.

Quotations on western Kentucky coal show an average on prepared of $2.80, ranging $2.50@$3.30; mine-run, average of $2.30, ranging $2@$2.65; screenings, average $1.60, ranging $1.05@$2. It is held that more mine-run is selling at around $2.40 than at any other price, and a considerable amount of screenings are selling up to $1.50@$1.75.

Western Kentucky is doing business on a real business basis this year, and deserves much credit for its strong efforts to get a fair value for its product.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Production About the Same—Nut and Slack Active—Inquiries Increase—Operators Not Anxious to Make Contracts.

Production in the Pineville district continues about the same, the mines running three to four days per week, with several of the smaller ones down entirely.

Considerable activity has been noted in the nut and slack market during the past two or three days, especially for Straight Creek. Most of the operators report that they are sold up and are not taking any business on prices which have prevailed during the past week or so. Block continues extremely dull and hard to move.

Prices on Straight Creek for 4-in. block are $3.75@$4; 2 x 4 round, $3.10 @$3.25; nut and slack, $1.60@$1.75; mine-run, $2.40@$2.50 and No. 2 mine-run, $2.

Several brokers and operators report an increase in inquiries, especially from the South for contract, indicating that consumers are beginning to see that coal is as low as it can be expected during the winter, but the operators are not jumping over themselves to make contracts at this time, as they have weathered the long months of dullness and are willing to take chances on a better spot market rather than to tie up their coal now at low prices.

Middle Appalachian

HIGH-VOLATILE FIELDS

Stagnant Market and Midsummer Dullness Combine to Depress Output—Lake Shipments Provide Only Outlet.

KANAWHA

Production in the Kanawha field was at a very low ebb the middle of July. The combination of a stagnant market and of the usual midsummer dullness was such as to still further curtail production in the region, there being at times during the week not more than 8,000 tons a day produced. Some of the old contracts have expired and that made for further dullness and for the shutting down of additional mines. There was no market for coal at Tidewater or the Lakes. Prices on mine-run ranged all the way from $1.50@ $2.10, with slack moving at about $1 a ton. Even prepared sizes were not bringing more than $3 a ton.

LOGAN AND THACKER

There was so little demand extant in the Logan field that producers were not making much of an effort to dispose of any coal. In the first place, there was a very light demand even for prepared sizes, which have heretofore been marketable, and mine-run could hardly be sold at all at any prices. The market for prepared sizes was $2.75@$3.00 and not more than $2.00 at the maximum for mine run. Slack, however, was fluctuating between $1.15 and $1.50 a ton. Many of the mines in the field were closed down entirely because of no market for their coal.

Conditions remained virtually unchanged in the Thacker field, there being about a 50 per cent output in that section, the production of the field hovering between 85,000 and 90,000 tons per week. All coal shipped, or nearly all of it, was being moved on contract.

VIRGINIA

In the Virginia field production continued to hover between 50 per cent and 60 per cent of capacity with many of the mines in the field out of commission as the result of a poor demand. Less coal than ever is being marketed on a spot basis and yet prices remained fairly firm, mine run commanding in the neighborhood of $2.50 a ton. Only the larger plants were in operation.

NORTHEASTERN KENTUCKY

Operations were greatly restricted in in the Northeast Kentucky field during the second week of June owing to poor market conditions, there being a production of not more than from 25 to 30 per cent, with most of the mines in the district closed down because of lack of orders. The only outlet at all for coal from this field was through the Lakes and even Lake shipments were being greatly curtailed. There was a feeble demand for domestic sizes but none for slack. Prepared sizes were not commanding much more than $3.00 a ton and mine run about $2.00 a ton.

LOW-VOLATILE FIELDS

Demand Feeble — Production Curtailed — Prices Weak — No New Contracts Coming In.

NEW RIVER AND THE GULF

Production was greatly reduced in the New River field during the week ending Saturday, July 16, as the result of a very feeble demand. Business in slack has absolutely gone to pieces and producers are literally giving it away when they let go of it at all. It is selling as low as $2@$2.25, with run-of-mine as low as $2.50 a ton. Lump and egg have dropped to $4 per ton.

The market for the coal produced in the Winding Gulf region had vanished almost completely by last week. It was not possible to ship much coal to Tidewater or to inland markets either for that matter, and prices are weak, being about on the same level as those in the New River region.

POCAHONTAS AND TUG RIVER

Production in the Pocahontas region was somewhat above that for the holiday week but was still far from normal owing to heavy "no-market" losses. Virtually all the mines in the region were in operation but not on a full-time basis. About the only orders they had to fill were being applied on contract since spot orders were few and far between. A comparatively large volume of coal was moving to Tidewater, some of it for export. There was a feeble demand for mine run at $2.50@$3.

Contract orders are enabling mines in the Tug River field to continue in operation at a fairly steady rate. There is little open market buying, however, and no new contracts are coming in. Much of the output of the field is being moved to Tidewater points. Prices were about on a par with those in the Pocahontas region.

West

UTAH

Situation Unchanged—Prices to Go Up Aug. 1 or 15—June Production Less Than Half for That Month a Year Ago.

There is no improvement in the coal situation here. One dealer thinks there is a slight tendency on the part of the consumer to purchase winter coal, but practically all the coal men here—dealers as well as producers—are unanimous in saying the situation is unchanged.

The Independent Coal & Coke Co. has notified its customers that prices will go up "either Aug. 1 or Aug. 15." The new prices will be: Lump, $5.50; stove, $5.25; egg and nut, $5; mine-run, $4.50; slack, $2.75. The circular contains no particular argument for the increase, merely observing that the company recognizes its inability to take care of the abnormal demand which will be made upon it next winter if buying is longer postponed. None of the other companies have agreed to change their prices, but our correspondent had a feeling, after calling on several of the representative companies, that they would do so.

Coal production in June amounted to 220,941 tons, or less than one-half that of June last year. The total production for the year is 1,729,456 tons, as compared with 2,863,450 during the first six months of 1920.

The labor situation is satisfactory and men show a disposition to stay with their jobs, even though they are working less than half time.

MINE And COMPANY NEWS

INDIANA

In announcing tax lists for this year the County Board of Review has rated the New Albany property of the **River Coal & Supply Co.**, at $39,980; and that of **Finger Brothers' P. & K. Coal Co.**, at $27,000. These are the two largest coal corporations in the city.

KENTUCKY

The Millers Creek Excelsior Coal Co., with mines at Auxier, has been incorporated with the following officers: H. W. Faught, president; T. B. Lane, vice-president and general manager and Wheeler Boone, treasurer.

The Pittsburgh Fuel Co., is completing work on installation of a new dumping pit and third elevator at its River Yards in Louisville, where it is now equipped for fast handling of river or rail coal. The pit is for dumping cars, and a locomotive crane has been installed.

It is reported that the **Holley mines of the S. S. Porter interests**, at Lackey, are pushing development, with the idea of having much increased tonnage ready to move when the market improves.

The Blue Diamond Coal Co., on First Creek, planning to enlarge its force when business improves, is erecting additional miners' homes, and getting things in first-class shape for larger production.

The George B. Miller, Jr., Coal Co. has filed suit against the **Clay County Coal Co.** and **Wilson Coal Co.**, the latter having been sold to the former by F. B. Moses, who failed to pay claims for coal sold to him before he sold the concern. The Miller suit is for $192.53 and asks for a judgment voiding the sale of the Wilson company to the Clay County company. Another suit naming Moses as defendant, is for $600 and was filed by the **Joseph Schildt Coal Co.**, in which it is alleged that Moses failed to pay for coal delivered him prior to his leaving the coal business.

MINNESOTA

A consolidation has been effected of the retail business of the **Reeves Coal Co. Yards, Inc.** and of the **City Fuel Co.**, of Minneapolis. Arch. Coleman, president and founder of the City Fuel Co. becomes president of the new Reeves Coal Co. Yards, Inc. which is the business title of the new concern. The McKnight Building office of the City Fuel Co. will be the main city office of the new company, but the West Hotel Lobby office, will also be maintained. The general offices will continue to be in the Lumber Exchange Building, where they have been for some years for the Reeves Coal Co. Fred W. B. Coleman retired from active connection with the business, although retaining his interest.

The City of St. Paul has awarded a contract to the **C. Reiss Coal Co.** to furnish Youghiogheny lump and mine run and Pocahontas screenings for various city bureaus for the coming year. The contract amounts to $70,000. **The M. A. Hanna Coal & Dock Co.** received a contract for hard coal, amounting to $17,000.

OKLAHOMA

The Mullen Coal Co., has been organized at McAlester, for the purpose of engaging in wholesale and retail coal business. The company is capitalized at $50,000 and the incorporators are: Peter I. Olinger, W. P. Mullen and Guy L. Andrews, all of McAlester.

The Hughes Coal Co., has been organized at McAlester, with a capital of $25,000. Incorporators are: R. E. Jones and J. H. Gordon, of McAlester and L. T. Sammons of Oklahoma City. The company will engage in a general retail and wholesale coal business.

The State Board of Affairs of Oklahoma has awarded contracts for 63,000 tons of coal to supply the state's needs for next winter. Contracts were awarded to several companies in the McAlester and Lehigh coal fields, and the price averaged $4.06 a ton f.o.b. shipping point.

Extensive development of coal deposits in Craig County, is planned and several new companies are preparing to carry forward the work in this newly discovered coal section. Large deposits have been found at comparatively shallow depths, and it is predicted that in a few years the section will be one of the most important coal mining districts of the Southwest.

The Central Coal and Lumber Co., a Texas corporation, has recently purchased for $400,000, large tracts of coal lands at Welch, Centralia, Timber Hill and elsewhere in Craig County, and is now preparing to spend about $400,000 in mine equipment. Modern electrically-driven machinery will be installed and several mines will be opened at once.

PENNSYLVANIA

The Oak Hill Coal Mining Co., of Washington, is opening up a new mine at Avella, on the P. & W. V. R.R. This mine will have a capacity of 1,000 tons daily and together with the Knox mine at Studa will give this company a daily output of about 2,000 tons. The output of both mines will be handled by the **Bixler Coal & Coke Co.**, of Pittsburgh.

The Spruks Construction Co. has been awarded a $200,000 stripping contract by the **Hudson Coal Co.** The stripping operation is to be opened at Greenwood, a short distance south of the Scranton & Lackawanna township line.

The Melcroft Coal Co. of Pittsburgh has ordered a hand operated Nolan feeder for the mine at Coxton, Ky.

Sixty-eight men were killed in and about the coal mines of Pennsylvania during May. This is shown in reports from state mine inspectors filed with the Bureau of Mines. The fatalities represent more than 43 per cent of all that occurred in the United States during May, there being 158 deaths from mining accidents throughout the entire country during the month. Forty-one deaths occurred in anthracite mines of the state, while tweny-seven were in the bituminous regions.

TEXAS

The Winfield Lignite Coal Co. has been organized at Winfield, Titus County, for the purpose of developing an extensive lignite bed that has been discovered in that county. The company is capitalized at $20,000 and the incorporators are: C. B. Richbourg, G. W. Anderson and J. W. Richbourg.

Development of lignite beds that underlie the country around Smithville, is soon to be undertaken by a company now being organized in that city. The company will have sufficient capital to install the most modern equipment and it is planned to begin active mining at an early date.

With the discovery of a vein of good grade coal just under the surface of the ground in Coleman County, plans for development are already under way.

The Rockwall Feed and Fuel Co., of Rockwall, has been organized to engage in a general retail coal business. The company is capitalized at $5,000 and the incorporators are: W. M. Nickles, G. F. Holt and S. S. Dudney.

UTAH

Permission has been granted by the State Securities Commission to the **Castle Dale Coal and Oil Association** to sell 10,000 shares of treasury stock, on condition that organization stock be escrowed properly

Owners of land in Iron County who desire to transfer mineral rights in their property to the state that they may thus avoid payment of taxes, can make such a transfer only by warranty deed, according to the terms of agreement which have been completed by the Attorney-General's Department. This deed will mean that although the party making the transfer quits all title to the land he must guarantee to the state that his title is clear. The completion of the deed, it is believed, will mark the end of a problem which has occupied the attention of the State Board of Equalization for a long time. For several years the owners of these lands have protested any assessment of value for taxation purposes on the ground that they were without value.

WEST VIRGINIA

Thomas Love, prominent in Connellsville coal circles has acquired all the properties formerly owned and operated by the **Stone & Scott Coal Co.** in Eagle and Clay Districts of Harrison County. These properties embrace about five mining operations on Bingamon Creek, together with much real estate. The consideration is said to have been about $70,000. The property acquired by Mr. Love will probably be transferred to a company which he represents and in which he is interested, for development and also for the purpose of operating the mines now in existence.

Suit has been instituted by the **New River Collieries Co.** of Sun against the **Sugar Creek Coal Co.** for $200,000, it being alleged by the plaintiff that the defendant company mined coal from a barrier separating the mines of the two companies and that the plaintiff's property has become damaged by water. Suit has also been instituted in the circuit court of Fayette County by the **Lynchburg Colliery Co.** against the Gauley & Eastern Ry. Co., the plaintiff alleging that the defendant in building its road on the opposite side of Gauley River permitted rock to be blasted into the river in sufficient quantity to divert the course of the stream and that during high water the property at Vanetta was damaged and that several houses have been washed away. The plaintiff asks for damages to the extent of $50,000.

The Siler Coal & Land Co. has leased seventeen tracts of coal land to tenants living on the leases controlled by the company. The tenants are given the right, under the leases, to mine coal for themselves or for other tenants under certain conditions conforming to the mine laws of the state. The mines are to be kept in good condition and no supports are to be removed. The leases run for a period of five years, renewable at the end of that time by the month, and to expire upon a notice of 30 days.

Uniontown business men who are the principal owners of the **Buckhannon River Co.** of Adrian, having the largest operation in Upshur County, inspected the Adrian property about the middle of June and at the same time held a directors meeting. Members of the party included: J. D. Lackey, J. B. Bute, Iden Vail, W. H. Binns, R. B. Otto, T. S. Dunn, Walter Williams, Samuel McClain and J. G. Binns.

It has been found possible to resume operations at the plant of the **Chesapeake Coal Co.**, at Barrackville, which was put out of commission several weeks ago during a storm when three transformers were dismantled by a bolt of lightning. Old transformers are being used temporarily until the receipt of new ones ordered.

BRITISH COLUMBIA

At the annual meeting of the **Crow's Nest Pass Coal Co.** held recently at Fernie, it was shown that the net profits for 1920 from all sources made a total of $497,165.03 and that four dividends had been paid, making a total of 6 per cent for the year and amounting to $372,688.50. During the year the company spent $40,813.01 on improvements and development work. The coal mined during the year amounted to 779,924 tons as against 536,543 tons produced in 1919 and the coke produced totaled 75,928 tons in 1920 compared to 63,915 tons in the previous year.

Traffic News

The complaint of the **Hood Coal Co.** has been assigned for hearing by the I. C. C. at Columbus, Ohio, Sept. 7.

In the complaint of the **Fairmont & Cleveland Coal Co. vs. the B. & O. R.R.**, the I. C. C. decides that the practice of the railroad in distributing cars to mines of complainant for coal loading are unreasonable and prejudicial, and prescribes reasonable and non-prejudicial rules for the future.

In the complaint of the **Federal Valley R.R. vs. the Toledo & Ohio Central**, an I. C. C. examiner recommends that the divisions accorded the complainant since Dec. 20, 1920, out of joint rates on coal from mines on its line to points in Illinois, Indiana, Michigan, Missouri, New York, Ohio, Pennsylvania, West Virginia and Wisconsin are not unreasonable.

In the complaint of the **Empire Iron & Steel Co.** the commission decides that the maintenance by the Central R.R. of N. J. of junction point rates on coal to points on the Morristown and Erie R.R., while refusing to maintain such rates to points on the Mount Hope Mineral R.R. is not unduly prejudicial.

In the matter of intrastate rates on bituminous coal in Ohio the commission has consolidated the following cases: **Southern Ohio Coal Exchange**, relating to rates on bituminous from Ohio groups to Central Freight Association territory, and the complaint of the **Michigan Paper Mills Traffic Association**, relating to rates on coal from Ohio and inner and outer Crescent fields to Indiana and Michigan.

Redmond Stephens, receiver for the Chicago & Eastern Illinois R.R. Co., recently filed a petition with the Interstate Commerce Commission for authority to abandon the Chicago & Indiana coal railway division of the C. & E. I. This division is usually known in Indiana as "the coal road." It runs from the state line near Morocco to Brazil and from Percy Junction to Lacrosse. The authority of the Hoosier commission to take a hand in the proceedings is not clear to the commission, but it is investigating, and may act to prevent the abandonment. The State Chamber of Commerce may also oppose the proposal.

An announcement recently made in southeastern Kentucky was to the effect that contracts have been placed by the **Interstate R.R.**, for construction of a twenty-mile extension of this road, to connect the Southern at Norton, Va., with the Carolina, Clinchfield & Ohio, contract being let to Brooks-Calloway Co., Atlanta, and calling for some real mountain road building, including many fills, cuts, three tunnels and seventeen bridges.

The United States Steel Corporation's subsidiary, the **U. S. Coal & Coke Co.**, at Lynch, has offered to pay for half of the cost of a twenty-mile stretch of concrete road from Lynch, to Appalachia, Va., which will give a road outlet to Virginia and also to Knoxville, Chattanooga and other points. Indications point to the early building of the road.

The Interstate Commerce Commission has suspended until Nov. 29 proposed reductions on anthracite coal from points in Pennsylvania to destinations on the Buffalo, Rochester & Pittsburgh R.R. and the Pittsburgh, Shawmut & Northern railway.

In the complaint of the **Wertheim Coal & Coke Co.**, the Interstate Commerce Commission has decided that rates on anthracite coal from the Lehigh and Wyoming regions of Pennsylvania to Jersey City from 1906 to 1911 were unreasonable.

Personals

A. H. Land, president of the Dickinson Fuel Co. and treasurer of the West Virginia Coal Association, was in California on a vacation during the early part of July. Mr. Land makes his headquarters in Charleston.

F. J. Kerner, manager of the export department of W. A. Marshall & Co., has returned from several months tour of Europe during which time he made a special study of the export situation.

Among visitors from the zone of operations who were in the Queen City were **John H. Custard**, manager of the Bluefield branch of Dexter & Carpenter and **George E. Merryman**, sales manager of the Bob-lo Coal and Sales Corporation of Charleston.

R. D. Jeffers, manager of the Columbus office of the West Virginia Coal & Coke Co. was a recent visitor at the general offices of the company at Elkins, W. Va.

C. T. Denly, president of the Schroeder-Kelly Coal Co., of Cleveland, accompanied by his son, were visitors in Fairmont, W. Va., early in July.

Conrad W. Troll, president of the C. L. Ayers Coal Co., and the Troll Coal Mining Co., and also one of the most prominent bankers in eastern Ohio, is suffering from severe injuries as a result of having been struck by an automobile on June 29. Mr. Troll is also president of the Second National Bank, St. Clairsville, Ohio; the Belmont Stamping and Enameling Co., New Philadelphia, Ohio, and the Belmont Casket Co., of Columbus. He, however, maintains a residence in Cleveland.

Fred H. Strumm, of the Carbon Coal & Coke Co., at Great Falls, Mont., was a recent visitor in the Charleston, W. Va., field.

E. S. McCullough, labor commissioner for the Northern West Virginia Coal Operators' Association, left Fairmont recently, accompanied by his wife, for a visit as the guest of his brother at Saginaw, Mich., where he expects to spend some time.

Charles F. Sutherland, former mayor of Morgantown, W. Va., and president of the Sutherland Coal Co. of Morgantown, has been elected city manager by the city council of Morgantown.

Robert A. Johnston, of the Crescent Fuel Co. of Fairmont has recovered from an attack of acute indigestion which confined him to his home for several days.

Samuel D. Brady, head of the Brady Coal Corporation, with headquarters in Fairmont attended the commencement exercises at Cornell University, Samuel D. Brady, Jr. being graduated from that school.

Benjamin Bissell of Baltimore, general manager of the Century Coal Co., was a recent visitor in the Fairmont region, also paying a visit to the mines of the company at Century, W. Va.

A recent visitor in the Fairmont region was **C. L. Ball**, of Pittsburgh, representing the Pioneer Coal & Coke Co. of that city.

R. M. Lambie, chief of the West Virginia Department of Mines has returned from a visit to Washington, D. C. and to Cumberland, Md. While on this trip Chief Lambie was accompanied by **V. E. Sullivan**, inspector for the 14th district.

Frank R. Lyon, vice president of the Consolidation Coal Co. has left Fairmont for a trip to Europe expecting to be absent from this country for about six weeks.

A visitor in the Marion field during the latter part of June was **T. H. Johnson**, of Bellaire, Ohio, president of the Chesapeake Coal Co. which has a plant at Barrackville, W. Va.

Prof. H. H. Stoke of the mining department of the University of Illinois, is in the East on his annual summer inspection trip.

Association Activities

National Coal Association

The Foreign Trade Committee of the Association, appointed June 1, 1921, is composed of the following:

Watkins, T. H., (Chairman) Pennsylvania Coal & Coke Corp., New York City.

Bockus, C. E., president, Clinchfield Coal Corp., 24 Broad St., New York City.

Barnum, Walter, treasurer, Pacific Coast Co., 50 Church St., New York City.

Bonnyman, Alex, president, Blue Diamond Coal Sales Co., Knoxville, Tenn.

Burrows, L. E., Castner, Curran & Bullitt, 1 Broadway, New York City.

Caperton, G. H., president, New River Coal Co., Charleston, W. Va.

Calloway, A. W., president, Davis Coal & Coke Co., Baltimore, Md.

Coleman, G. Dawson, Nanty Glo Coal Mining Co., Nanty Glo, Pa.

Cunningham, W. H., vice-president, Courtright-Dimmick & Cunningham, Inc., 115 Broadway, New York City.

Farrell, T. F., second vice-president, Pocahontas Fuel Co., Inc., New York City.

Grant, Robert, president, New England Coal & Coke Co., Boston, Mass.

Gross, R. H., president, New River Co., Boston, Mass.

Heiner, Moroni, vice-president, United States Fuel Co., Salt Lake City, Utah.

Hood, Kuper, general manager, Houston Coal Co., Cincinnati, Ohio.

Jamison, R. H., president, New Alexandria Coke Co., Greensburg, Pa.

Knode, R. H., vice-president, Stonega Coke & Coal Co., Philadelphia.

McCandlish, Lindsay, second vice-president, Hutchinson Coal Co., Philadelphia, Pa.

Puckett, W. M., president, Cabin Creek Consolidated Coal Co., Charleston, W. Va.

Steinbugler, J. L., secretary, Wm. C. Atwater & Co. Inc., New York City.

Sweet, F. A., president, Standard Coal Co., Salt Lake City, Utah.

Walsh, J. P. vice-president, Pittsburgh Coal Co., Pittsburgh, Pa.

Wilshore, F. W., vice-president, Consolidation Coal Co., 67 Wall St., New York City.

Industrial News

Cincinnati, Ohio. — The National Coal Mining News, successor to the West Virginia Mining News is now located at 834 Union Trust Bldg., instead of Charleston, W. Va.

New York, N. Y.—The Allied Machinery Co., of America, has been appointed the foreign representative in all countries except the United States and Canada for the Universal Crane Co. of Cleveland.

Washington, D. C.—In connection with the proposed electrification of industry between Washington and Boston, through the development of water power, the Census Bureau has issued a report as to fuel consumption in this territory. It shows that 95,984 manufacturing establishments, mines and quarries in the area consumed 20,910,000 tons of anthracite, 34,669,000 tons of bituminous and 5,661,000 tons of coke in 1920.

Obituary

Harry J. Huntzinger died recently at his home in Uniontown. He was formerly an engineer for the H. C. Frick Coke Co., later operating the Olive Coal Co. independently until he sold his interests about five years ago, when he helped organize and became general manager of the Liberty Coal Co., with mines at Newcomer, Pa.

Coming Meetings

The Huntington Coal and Industrial Exposition will be held in the Chamber of Commerce Building, Huntington, W. Va., Sept. 19 to 24 incl. Chairman of committee, Thomas A. Palmer, Huntington Chamber of Commerce, Huntington.

American Institute of Mining and Metallurgical Engineers will meet at Wilkes-Barre, Pa., Sept. 12 to 17. Secretary F. F. Sharpless, 29 West 39th St., New York City.

National Association of Cost Accountants will hold its annual convention at Cleveland, Ohio, Sept. 14, 15 and 16. Secretary, S. C. McLeod, 130 West 42d St., New York.

The American Mining Congress and National Exposition of Mines and Mining Equipment. The twenty-fourth annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, John T. Burns, Congress Hotel, Chicago, Ill.

The West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers will hold its annual meeting at Huntington, W. Va., on Sept. 20 to 23. Secretary-treasurer, Herbert Smith, Huntington, W. Va.

The following first-aid meets will be held during August: The Davis Coal & Coke Co., first-aid and mine rescue meet at Thomas, W. Va., on the 3d. The State of Iowa will hold its annual first-aid and mine-rescue meet on the 6th at Albia. At Birmingham, Ala., state first-aid and mine-rescue meet on the 6th. Under the auspices of the Colorado Fuel & Iron Co. a local first-aid and mine-rescue meet will be held at Pueblo, Col., on the 20th. The Stonega Coal Co. will hold its annual first-aid meet at Stonega, Va. on Aug. 8. The Lehigh Coal & Navigation Co., field day and first-aid meet on Aug. 13 at Greenwood Park, Hauto, Pa.

New York State Coal Merchants Association, Inc. will hold its annual convention at Richfield Springs, N. Y., on Sept. 8, 9 and 10. Executive secretary, G. W. F. Woodside, 250 Arkay Bldg., Albany, N. Y.

Canadian Institute of Mining and Metallurgy will hold its annual Western meeting at Edmonton, Alberta, Canada, Sept. 14, 15 and 16. Convention secretary, T. B. Williams, 10,610 83d Ave., Edmonton, Canada.